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THE SCIENCE OF LIFE: ITS STUDY AND CONNECTIONS.

BY

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[DR. ALISON stated to those members of the Association who had not availed themselves of the invitation of Professor Balfour to the Royal Botanic Garden, that he had noticed the interest excited in the Association on the preceding evening by the excellent address of his friend and former pupil, Dr. G. Wilson. He regarded it as a matter of extreme importance, in the present state of the sciences of life and of the medical profession in this country, to distinguish as far as possible the lines of inquiry in which precise and useful knowledge might be expected, from those which are truly beyond our powers, especially in those departments of the subject in which mental acts, and therefore metaphysical reflections, are concerned; and in which, notwithstanding all that had been said in ridicule of Scottish metaphysics, he was anxious to show that the Scottish schools of medicine maintained their connexion with the studies and doctrines of Reid and of Stewart, of Brown, Abercrombie, and Chalmers. He was therefore desirous of communicating some notes which he thought might be regarded as a commentary on that paper of Dr. Wilson, and which he had prepared, without any communication with Dr. Wilson, as part of the first address he had delivered to the Association, but had omitted from consideration of the time of the members. These notes, at the request of the remaining members, he then read, and afterwards incorporated with the second part of his former address, nearly as follows:—]

I hope you will not think I am taking too serious or too abstract a view of matters, if I devote the remainder of this address to a short commentary on a text which I have seen expressed by several recent authors, particularly in Germany, and which seems to myself to be both a true observation and a fitting reflection on the very rapid stride which an all-seeing Providence has permitted to different branches of science connected with medicine in our day—viz., that the connexion or reconciliation of science with religion is the great question of the day. If so, I think we may reasonably expect that our science, its distinct branches, and its practical application, will soon attain, and will never lose, a higher degree of dignity and importance than have ever yet been thought their due.

I. First of all, we refer to the axiom of Bacon in regard to all sciences—that they must all be conversant, in the first place, with *negative* facts, distinguishing each of them from all other branches of knowledge. It is now, I think, generally allowed, quite in accordance with this observation, that the only accurate and precise statement of what we mean by the Science of Life, healthy or diseased, is given simply (as was justly observed, not, however, until the beginning of the present century, by Cuvier, the great naturalist and comparative anatomist) by looking around us, describing and generalising a great number of the phenomena which the objects around us present—all those to which, when so observed, described, and arranged, we apply the more specific terms, Generation, Nutrition or Assimilation, Organisation, and Death—all of which are exceptions to the laws that regulate the changes, chemical or mechanical, of inanimate matter, but are seen in and characterise, or give an individual history to, any object, whether of the vegetable or animal kingdom, that we say is *alive;* and just in proportion as we can assign with precision the circumstances which modify or render them exceptional, the differences between them and the changes to which the same elementary matter, in all other circumstances, is liable, we may say that we understand the phenomena of life. (*Leçons d'Anat. Comp.*, p. 1-2, an. viii.) Then we distinguish without difficulty, as Bichat did, the animal from the organic life, by saying that, whenever we are satisfied that any of the phenomena which we call mental, even the simplest sensation, recollection, intuition, or instinctive effort, exist, we say that there an animal exists; and any farther difficulty as to this preliminary line of inquiry is only as to the question whether such mental act really took place as supposed, or as to which of the classes of organised structures formed by this vital action, and already examined and arranged, the object before us, at any one time, is to be referred.

The most general and most essential of all these phenomena are truly chemical changes.* They are exceptions to those chemical changes to which a few elementary matters, carbon, oxygen, azote, hydrogen, and a few other inflammables, and metals and metalloids, under the same circumstances of pressure, gravitation, heat, light, and electricity, are liable, and appear, from many unequivocal phenomena around us, to have been liable for many ages. The matter which composes organised structures, or a large portion of it, from being fluid, becomes solid within them, and assumes uniform, often perfectly regular forms, in doing so; but, during this development, it never assumes crystalline forms, although the same elements, but for the presence of organic germs of one kind or another, presenting similar indications of life, would, as we know, pass infallibly into such combinations as show plane surfaces and crystalline forms. And the forms assumed in Nature, and therefore the powers that form them, are always of a definite, often of a very limited duration. This is the primary or elementary principle, distinguishing everything living and even everything that has once been dependent on life, from inorganic matters. In all other respects, every admissible description of living matter must admit of variety which we may truly call infinite, the forms and colours regularly assumed being sufficient not only to distinguish all the known species both of vegetables and animals, but to give individuality to every single member of the family thus formed; but in this one there is uniformity so constant that, when we reflect on it, we may well think it strange that it was not until our own time, not until the observations made especially by the late Dr. Prout, that this, which we may state as the first important commentary made on the characteristics of living matter which I have quoted from Cuvier, was clearly pointed out.

II. The next important observation, not absolutely generalised, but which we are sure is at least very nearly an *ultimate fact* in the sciences of life, is that which was, I believe, first demonstrated in this country by my friend Dr. Hughes Bennett, as it had been previously explained in Germany, but as to which I believe both must yield precedence to a French naturalist, since unfortunate, M. Raspail, who expressed himself (illustrated the principle), certainly as early as 1827, to this effect: Give me a vesicle or cell, with semifluid contents, capable of developing within itself other vesicles or cells, "à

* This observation also was made, although not fully illustrated, by Cuvier. "Ces transformations perpétuelles de composition chimique forment une partie non moins essentielle du tourbillon vital, que les mouvemens visibles et de translation; ceux-ci n'ont même pour objet que d'amener les premiers." (*Le Règne Animal, etc.*, t. i. p. 29.) And again: "Toutes les fonctions animales paraissent se réduire à des transformations de fluides, et c'est dans la manière dont ces transformations s'opèrent, que gît le véritable secret de cette admirable économie, comme c'est dans leur bon état et leur marche régulière que consiste la santé." (*Leçons d'Anatomie Comparative*, t. i. p. 33.)

mon gré, et je vous rendrai le monde organisé". (*Chimie Organique*, p. 547, Paris, 1833, with reference to Séance de l'Acad. des Sciences, 23 Avril, 1827.)

Since the greatly improved microscope has been generally applied to the study of comparative anatomy and physiology, we have obtained means (requiring, no doubt, care to avoid various sources of fallacy) of observing and comparing with one another the actions that go on, during the life and growth of vegetables, and at the parts of the circulation in animals where the changes essential to organisation itself, and to the varied actions of organised structures, take place; and we can now, therefore, say with confidence, that it is to such changes as take place in cells, or even among the particles of apparently homogeneous matter within these or other cavities, not to any action of vessels, that the universal although infinitely varied function of nutrition, and therefore all living action, must be referred. I think we may add, that it is now generally admitted, that the peculiar powers which are primarily and chiefly concerned in causing these movements, must act in the way of Vital Attractions and Repulsions, and Vital Affinities, as distinguished from contraction of solids and their impulse on fluids.* We can perceive such differences in the physical movements and chemical changes of these particles, as are of themselves sufficient to indicate the existence of laws independent of any other phenomena in nature, and which we must regard as ultimate facts in the science of life, healthy and diseased, regulating the matter that is delivered into the capillaries of the circulation in the higher animals, equally as the life in the cells of the lowest vegetables. The conditions requisite for the development of these cells, and the changes to which the matter composing these cells are liable, are the truly characteristic laws of life. The following quotation (which might be easily extended) will serve to impress on the mind the importance of the principle thus generally illustrated, and the futility of any attempt to trace its source farther than the well-weighed expression of Clarke, "that what men call the course of Nature is simply the will of God."

"Thus, no creature is a fortuitous concourse of atoms.† Each is as definite and constant in its chemical constitution as in its mechanical structure, or internal form. A bird does not more certainly, in successive generations, instinctively build its nest in the same way, than from the first moment of its embryonic life it unconsciously builds its own body out of the same materials, gathering lime to its bones, iron to its blood, and silica to its feathers. In this way, through unnumbered centuries, each tribe of organisms has, from the period of its creation, followed, in its structural development, a chemical formula of composition, which in the same species is constant, within narrow limits, for every one of its members, so that each plant and animal has a chemical as well as an anatomical individuality." (*Edinburgh Essays, on Chemical Final Causes.* By G. Wilson, M.D., Professor of Technology, p. 310.)

The general inference of Braun will shew, I believe, what is generally thought the extent of our present knowledge, so far as gained by actual observation, as to the obscure but all-important process of assimilation, both nutritive and destructive. I transfer, but abridging, and, I trust, somewhat simplifying his expressions, from the translation. (p. 324.) He asks, after full exposition of a long and varied course of microscopical observations on the most minute and apparently simple forms of life, vegetable and animal, or on the borders of both, "what property of life really declares itself in the phenomena of rejuvenescence? First, we must admit, that the natural and usual succession of those phenomena cannot be explained by the action of any law, or physical cause, acting externally to the organised parts themselves, which take on the vital action, but point to an internal cause. Next, we observe that this internal, immaterial vital agent (which, in strict language, I apprehend we may call this efficient cause, because it is one from the agency of which mental attributes may be inferred, but which is simply an ultimate fact in this part of physiology) manifests itself here by a repetition of the changes which were the result and indication of the original vital purpose.‡ There is a renewal of the inherent design of life, as shown clearly in the succession of generations, by the old specific nature returning to life with each individual; still more, when, in the course of rejuvenescence, a long relinquished parent form suddenly returns to existence, as in the striking back of varieties, and return of hybrids to the mother species, of which we have an example lately particularly described in the *Cytisus Adami*, a variety of the laburnum, formed originally, no doubt, as a hybrid between the yellow and the purple, and in which branches of flowers of the original yellow colour and original purple soon mingle with the larger masses of the intermediate colours."

We are not, however, to regard the molecular movements in the interior of cells as hitherto fully and satisfactorily investigated. The following sentences, by some of the most eminent and experienced observers, show that a part of the process there going on must still be held to be equally peculiar and obscure.

"L'examen des invertébres marins, qui déjà sur tant de points a corrigé des erreurs graves résultant de l'étude exclusive des animaux supérieurs, est généralement peu favorable à la doctrine cellulaire.... Jamais nous n'avons vu la fibre musculaire ou nerveux commencer par une cellule; jamais ni dans l'une ni dans l'autre nous n'avons trouvé la moindre trace d'une formation cellulaire. Pour les organes musculaires surtout, il ne saurait nous rester de doutes. Nous avons vu des appareils entiers encore uniquement composés de sarcode, et pourtant déjà reconnaissables. ... Bien plus, nous avons vu des masses d'apparence exclusivement sarcodique, se contracter et produire des mouvemens sans qu'aucun motif peut y démontrer les fibres qui devaient exister plus tard. Ainsi, dans certains cas, non seulement la forme mais encore les propriétés les plus caractéristiques préexistent aux tissus, et ceux-ci prennent naissance immédiatement dans le sarcode, soit par le fait d'un départ, soit par une simple condensation." (Quatrefages, *Les Métamorphoses. Revue des Deux Mondes*, t. x, pp. 106-9.)

"L'étude de la métamorphose autant que celle de la transformation, nous ramène comme de force à notre point de départ. On ne peut pas plus comprendre l'une que l'autre, sans admettre l'existence d'une force inhérente aux organismes vivans, partout présent et partout active, maitrisant les matériaux empruntés au dehors, les disposant d'après un plan tracé d'avance, les rejetant quand ils sont hors d'usage. Comme cause primaire, comme procédé général de tous les phénomènes dont nous avons esquissé le tableau, nous retrouvons donc la vie et le tourbillon vital." (*Ib.*, p. 314.)

"Tous les phénomènes que nous présentent l'organisme d'un mammifère depuis l'apparition du germe jusqu'au moment de la mort, supposent dans la matière composante du corps des mouvemens moléculaires continuels. Rapprochant de cette conclusion inévitable ce fait presque général chez les vertèbres que, jusque dans l'embryon et au moment de la croissance la plus rapide, il existe, comme chez l'adulte, des organes considérables chargés à conduire au-dehors la matière disorganisée,—et le mot de tourbillon vital se présentera de lui-même à notre esprit, tantôt accumulant les matériaux du nouvel être sur un point, tantôt les arrachant sur un autre, et produisant ces mille transformations dont nous avons tenté de donner une idée." (*Ib.*, p. 116.)

The wonderful phenomenon of the movement of the protoplasm is usually designated by the name of "rotation of the cell-sap". Although described by Corti in 1774, the phenomenon was altogether forgotten till discovered a second time in Chara by Treviranus, in 1807. For a long time it was supposed to be a peculiarity belonging to a few water-plants, until the researches of recent times shewed that it is an universal phenomenon. The cause of the motion is altogether unknown. (Mohl's *Vegetable Cell*, pp. 38-9.)

III. We may next state that the phenomena constituting the sciences of life have gradually, as they have been carefully studied, assumed the form and demonstrated the existence, even the immediate physical causes of this great chemical circulation, or *tourbillon vital*, the maintenance of which is the first and most essential object of all vital action. This is most simply described as commencing in the ascertained peculiar influence of light on the atmosphere, decomposing the carbonic acid, attaching to part of the carbon thus set free, and which we may term vitalised carbon, first water, and then smaller

* See papers by myself, in *Edinburgh Philosophical Transactions*, 1846 *et seq.*

† Observe here, what is the scientific meaning of the term, "a fortuitous concourse of atoms." It means only a concourse of atoms determined by the same laws as regulate the movements and position of inanimate matters, to which, as stated by Cuvier, all the phenomena of life stand here opposed, or constitute an exception, having laws of its own, which are the objects of all physiological inquiries; and as to which, the first object is, to see clearly how essentially they differ from any of those to which matter was subjected before God said, "Let there be light, and there was light."

‡ The terms used here are recollection, or reminding; but I apprehend that in this discussion, where our object is simply to ascertain physical causes, the term repetition or renewal is more correct,—whatever weight we may very properly ascribe to the additional reflexion suggested by the term reminding, as regards the discussion of final causes, which are properly kept separate from the physical.

and more variable proportions of the constituents of ammonia, and of certain metals or metalloids and inflammables.

This vitalised carbon passes, under the form of sap, through the living vegetable kingdom, its organic principles and its organised forms; beginning as cells or vesicles, even as vesicles in the first place exactly similar, although afterwards changing to all the forms and all the substances, equally peculiar as the forms, of which living matter is composed. This matter then passes as blood through the animal kingdom, its organic principles and its organised forms—always dependent on vegetables, directly or indirectly, for their support—and its excretions by the lungs, skin, bowels, and kidneys. Here these chemical elements are always found in such proportion to one another and to the oxygen taken in at the organs of respiration (evidently for the purpose of slow combustion and retrograde assimilation of these matters, when they have lost their vitality, and are to be expelled from the body), as to show that their quantity and original properties have undergone no change in thus passing through the different kingdoms of living nature. The matter assumes distinct forms and distinct properties in passing through the different textures, and in all parts of the structure it loses the peculiar qualities of life, and reverts in each texture, after a certain time, and many times during the life of the whole, to the chemical principles of the dead state; thus forming poisons if retained in the body, but, if coming under the influence of the oxygen, forming, in the course of the circulation, those compounds with it which are essential to the different excretions, and then subjected to the retrogressive assimilation, and so passing out of the body, or else dying generally or partially, while still forming part of the body itself, in either case becoming liable to some form of fermentation, when it again comes into contact with the atmosphere, water, and the existing crust of the earth, under the narrow limits of temperature and of atmospheric pressure then present; and so undergoing the preparation for running the same course again, when again presented to the living textures, or the organic germs in which, as far as we can see, that course began. In this course, it is easily perceived that the atmosphere, the plant, the animal, and the existing crust of the earth, are necessarily and successfully employed; and it cannot be denied, that we have thus acquired precise information as to the manner in which living beings originated and have since been maintained on earth under the influence of light, such as could not have been understood until the discoveries of the present age.

We may refer particularly to the statements and reasonings of Davy, of T. Saussure, of T. A. Knight, of A. Brogniart, of Liebig, and of Dumas and Boussingault, as establishing the existence of this grand circulation, and then we find no difficulty in assigning the place and the immediate object or design of all classes of vegetables and animals, and of all their organs, somewhere in the course of this circuit. In viewing the animal body, more particularly, we say that all its parts, and all their functions, are designed for procuring, receiving, protecting, moving, chemically changing, and gradually incorporating with itself, the living matter which the vegetable, on which it is always directly or indirectly dependent, has so far assimilated. Further, we can prove that the nervous system, living and growing, nourished and protected, within the animal body, as a parasitic plant is within a vegetable, is not only essentially concerned in maintaining all those actions going on within the living body, and forming parts of this process, in which what we call mental acts are concerned, but likewise, to a certain degree to all animals, and especially in the case of man in those ulterior actions to which we give the name of acts of intellect and of recollection, of emotion and feeling, of motion, aim, and voluntary effort—those higher and more peculiar changes, which we cannot but regard as great part of the object for which the whole of this creation of living beings has been designed.

And when the place and immediate objects of all living actions of animals, somewhere in this grand circulation, have been assigned, as existing in the healthy state, then the causes and consequences, the symptoms and terminations, of the various diseased states produced in them by injury, by poisons of various kinds, and by other causes—some of them known, others still unknown—become subjects of at least probable reasoning, of practical application, just on the same principle on which Newton thus argued: "To tell us that every species of things is endowed with an occult specific quality, by which it acts and produces manifest effects, is to tell us nothing; but to devise two or three general principles of motion from phenomena, and afterwards to tell us how the properties and actions of all corporeal things follow from these manifest principles, would be a great step in philosophy, though the causes of those principles were not yet discovered; and therefore I scruple not to propose the principles of motion above maintained, they being of very general extent, and leave their causes to be found out." (See Whewell, *Philosophy of the Inductive Sciences*, vol. ii, p. 454.)

iv. Farther, connecting the science of Physiology with Geology, we have the most convincing proof that the great chemical circulation, or *tourbillon vital* of which we have spoken, is not only kept up by the continued action of many living organised structures, purposely designed, in combination with the laws of dead matter existing on our earth's surface for this end; but that it was itself introduced, as an arbitrary innovation, on a previously existing world. Let us remember the expressions of Cuvier as to the Laws of Life resisting for a time those which govern inorganic matters, and even acting for a time on the matter surrounding them in a way quite contrary to those laws, that it is only by determining in what those exceptions consist that we shall fix the meaning of the term—life; again, "that life, as we see it, springs only from life, there exists no other than that which has been transmitted from one living being to another by uninterrupted succession"; but again, "that living bodies are a kind of furnaces, into which dead substances are successively brought, to form various combinations there,—to occupy a place and exert an action there, determined by the nature of those combinations, and then to escape from thence and return to their subjection to the laws of dead matter" (*Anat. Comp.*, sec. i. pp, 5, 7). We shall then see that, in thus expressing ourselves as to the essential peculiarities of all living beings, and therefore of the laws of life to which their existence as such is owing, we hardly go beyond his anticipations. Some more recent authors who treat of different parts of this process, still assert (*e. g.* Geoffrey de St. Hilaire, Comte, and La Marck), that we "have nothing to do with designs in nature". This assertion, I think, may be regarded as simply declining the study of physiology, properly so called, and confining themselves to zoology or morphology; in regard to which limitation we have only to observe, that, taken alone it cannot in the slightest degree entitle them to find fault with others, whose object in the examination of Nature is not only to ascertain what forms exist, but also, as far as can be made out, according to what laws does Nature act in producing them.

It is not on account of any doubt or hesitation as to this being the legitimate and scientific mode of disposing of the subject, but merely on account of the importance, with a view to the object above stated, of reconciling science with religion, that it seems desirable that the clearest and simplest view of this matter should be made familiar to medical men.

We are, in this part of the world, so far from agreeing to that statement of some naturalists in France, that we hold the science of physiology to have been truly regarded and justly venerated from the earliest period of scientific inquiry as that portion of general science in which the *adaptation of means to the end*—what has lately been termed by some Teleology—is most obvious and distinct. We regard the right view of this series of inferences, constantly attending the results of all our inquiries in physiology, as a matter of the first importance; and we still refer to the *Natural Theology* of Paley, and the *Bridgewater Treatise* of Roget, as the most convincing statement of an argument which has descended to us from Plato and Cicero, from Clarke and Newton, from Haller and Cuvier, from Reid and Stewart, from Brown and Chalmers, and been maintained in our own time by Brodie and Owen, not to mention many others, in the ample confirmation of the assertion of Reid, that it gains strength as the works of Nature are examined by man, and "is more convincing now than it was some centuries ago"; to which I think we may add, that a principle so important and so clear is most highly honoured when it is expressed in the simplest terms; and, unless in the case of misapprehension and correction of any part of the argument, is transmitted from age to age with the least possible variation.

The chapter of Paley's work, in particular, which is devoted to *Prospective Contrivances, i.e.* those where structures are prepared, of no use at the time when they show themselves, but with a view to contingencies, which must have been in contemplation of the cause by which these structures have been planned, such as the wings, and many other organs in the fœtus, the use of which is strictly confined to the life of the adult,—has been always regarded as in itself truly conclusive; but it is rendered still more satisfactory when it is observed that, according to the recent inquiries of Agassiz, Braun, and others in Germany, every animal, without exception, being subject to

metamorphosis at some period of its life, has such prospective contrivances in its composition. This argument, as is usually thought, has therefore received immense additions to the minor proposition of the syllogism in which it was stated by Reid, from the investigations of comparative anatomists and of geologists of the present age. The syllogism itself, as stated by Reid, hardly admits of simplification. The major proposition is, "That the adaptation of means to the end implies design, *i. e.* that our minds are so constituted as to make that a reasonable, because immediate and unavoidable, inference, or intuitive perception": the minor, "That many such adaptations are seen on examination of Nature"; and the conclusion, "That the works of Nature indicate, or have resulted from, design". The argument does not become more forcible : but its applications are extended, we may say, *ad infinitum*, and demand a continually increasing veneration from a continued attention to the simplicity of design, the ingenuity of contrivance by which that design is worked out, the unity of structure in which it is contained, the variety of the types or models on which that structure has been arranged, or the beauty of the forms or of the colours that result.

That the indications of arbitrary will, as distinguished from Necessity in the operations of Nature, are of peculiar importance in this argument, was distinctly stated by Newton, whose expressions are, "*Naturæ leges, in quibus multa sane sapientissimi consilii, nulla necessitatis apparent vestigia*"; and the same idea is farther developed in the language of the MS. in his handwriting, found in the papers of the late Dr. Gregory, and of which the most striking expressions were published by his son, the late Dr. J. C. Gregory, in the *Transactions of the Royal Society of Edinburgh*.

This is, in fact, the very same discussion, although expressed in somewhat different terms, as was carried on by Cuvier and G. St. Hilaire as to the relation of each species or tribe of animals with the conditions of its existence. It being admitted by all, that in most, if not all tribes of animals, this relation is so preserved, that, by examining even small parts of its structure in the dead,—even in the fossil state,—its bones (Owen), its organs of locomotion and prehension, and of digestion (Cuvier), even the structure of the globules of its blood (Williams of Swansea),—many of its habits, the temperature suited to it, the mode of its life, and the general conditions under which it obtains its nourishment (so remarkably shown by Owen as to the animals in Australia), and much of the structure of its other parts, and especially of its nervous system, can be safely inferred,—the question is, which of these is cause, and which effect? If it had been found that the existence of each species is coexistent with the circumstances on which we know that its nutrition must depend, we might have inferred that its appearance on earth, as well as its maintenance there, so far as we can see, is a matter of necessity consequent on the previous existence of those circumstances, and that it will be found wherever the conditions of its existence are combined. But we know that this is so far from being the case, that, both in the animal and vegetable world, the conditions of existence of each species extend much more generally over the surface of the earth than the species or variety itself; so that whether the creation of species, as many suppose, is still going on,—as that of varieties certainly is,—or not, there certainly have been centres of creation for each species (E. Forbes); and there are, under the observation of us all, points at which species, vegetable or animal, are introduced into districts where they were previously unknown, and whence they have spread as rapidly and easily as any species regarded as indigenous. Hence the obvious and irresistible inference is, that peculiarly organised structures are found, not *wherever*, but only *where* the temperature and the nourishment, and other conditions of their existence are known to be prepared for them; and here the inference of the existence of the Intelligent Power goes along with the recognition of each species. Accordingly M. Agassiz, after stating, in regard to the metamorphoses of animals, that they "force upon us the conviction that there is an immutable principle presiding over all these changes, and regulating them in a peculiar manner in each animal;" and, after reviewing the general distribution of the tribes of animals on the earth's surface, adds, "The distribution of animals cannot, any more than their organisation, be the *effect* of external influences. We must, on the contrary, see in it the realisation of a plan wisely designed, the work of a Supreme Intelligence, who created, at the beginning, each species at the place, and for the place, which it inhabits." (*Outlines of Comparative Anatomy*, etc., § 525 and 627.)

That the organic germ by which the first individual of the species originated, should maintain itself in the presence of the various conditions of its existence, we understand; but how that organic germ should come into existence we do not see. "Les méditations les plus profondes," says Cuvier, "comme les observations les plus délicates, n'aboutissent qu'au mystère de la *préexistence des germes*." (*Le Regne Animal*, etc., t. i, p. 20,)

Whether, as stated by some of the ancient Greek sophists, the first egg came from a bird, or the first bird from an egg, the existence of an egg without an ovarium of the same species to nourish or protect it, or of a bird without an egg, whence it may have sprung,—whether taking place suddenly or slowly,—must have been equally miraculous, *i.e.*, must have indicated a Designing Power capable of altering the laws of nature, but confining its operation, in the first instance, to a small number or a single case. The extension of the phenomenon, first, to nearly one hundred thousand described and arranged species of vegetables, and afterwards to the whole of the four great kingdoms of animals, and the detection of the period,—perhaps from six to eight thousand years since, when neither plant nor animal lived on the surface of the earth,—only limits or extends, but does not alter the inference as to the mode of their introduction.

Each hemisphere, says M. de Humboldt in his *Personal Narrative*, "produces plants of different species; and it is not by the diversity of climates that we can attempt to explain why equinoctial Africa has no laurineæ, and the New World no heaths; why the calceolariæ are found only in the southern hemisphere; why the birds of the continent of India glow with less splendid colours than those in the hot parts of America; finally, why the tiger is peculiar to Asia, and the ornithorhynchus to New Holland."

The total diversity of all the plants and animals of New Holland from those of all other countries; the complete separation of the Old from the New World in their representations of natural families, not only in their living, but in many of their fossil productions, is part only of a general system of regional repartition which pervades the whole scheme of organic life,—a *fact* of the first magnitude, whatever be the speculative aspects in which it may be regarded. (*Essays* by Sir John Herschell, p. 356.)

If these statements are correct, it appears to me that the only resource of those who cannot acquiesce in the whole inferences usually drawn from the contemplation of nature, as to the power and benevolence of our Creator, is to assert that we are not entitled to assign an arbitrary power to the Great First Cause that we recognise; that we are sure of the existence of laws by which the course of events is regulated, and certain designs accomplished; but that this does not imply a power which can arrest or alter these laws at pleasure. This is merely reasserting the same doctrine of necessity in its application to the works of nature; and, without entering on any metaphysical discussion of that question, we refer to facts which are established in physiology and geology as affording the clearest indication that the universe is under the guidance, not only of laws, but of a Power superior to those laws, and capable of changing them at pleasure.

And if it be from the studies of medical men that this assurance may most easily be drawn, it is equally certain that the daily life of each medical man presents occasions peculiarly demanding information on this head, if not for regulating his conduct, at least for giving consistency and consolidation to his reflections. Observe the conclusions of the best geologist from the appearances anterior to the creation of Man:

"The attempts to frame a theory of the earth have brought into view two completely opposite opinions; one, which represents the course of nature as uniform through all ages, the causes which produce change having had the same intensity in former times which they have at the present day; the other opinion, which sees in the present condition of things evidences of catastrophes: changes of a more sweeping kind, and produced by more powerful agencies than those which occur in recent times. Geologists who held the latter opinion, maintained that the forces which have elevated the Alps or the Andes to their present height, could not have been any forces which are now in action: they pointed to vast masses of strata hundreds of miles long, thousands of feet thick, thrown into highly inclined positions, fractured, dislocated, crushed: they remarked that upon the shattered edges of such strata they found enormous accumulations of fragments and rubbish, rounded by the action of water, so as to denote ages of violent aqueous action; they conceived that they saw instances in which whole mountains of rock in a state of igneous fusion,

must have burst the earth's crust from below; they found that in the course of the revolutions by which one stratum of rock was placed upon another, the whole collection of animal species which tenanted the earth and the seas had been removed, and a new set of living things introduced in its place; finally, they found above all the strata vast masses of sand and gravel containing bones of animals, and apparently the work of a mighty deluge. With all these proofs before their eyes, they thought it impossible not to judge that the agents of change by which the world was urged from one condition to another till it reached its present state, must have been more violent, more powerful, than any which we see at work around us. They conceived that the evidence of 'catastrophes' was irresistible." (Whewell, *The Philosophy of the Inductive Sciences, the Doctrine of Catastrophes, and the Doctrine of Uniformity*, vol. ii, chap. 3, pp. 123-4.)

These statements appear to me equally accurate and conclusive. Indeed, it seems to me impossible to conceive a more perfect illustration than is here given of the principle laid down by Newton as essential to the conclusion of natural theology; but it is clear that the evidence of the *nulla necessitatis* here goes along with that of the *multa consilii vestigia*, as indicating the nature of the Designing Cause made known to us by the sciences of physiology and geology. The whole phenomena now brought under the domination of these sciences denote, as Cuvier expresses it, deviations from or innovations on the previously existing laws of the universe. These deviations, whether gradual or sudden, have been the effects of a Power which, as Dr. Clarke expressed it, has been "*perfectly arbitrary*, and may be as easily altered at any time as be preserved". The observation of Cuvier narrows to a point, as we may say, the most mysterious part of the process, *i. e.*, the pre-existence of the first germ of each species. The deviations from the pre-existing state of matters *have been* varied, not according as the external conditions of every species of vegetable or animal have varied, but according as the Will of an Intelligent Power, cognisant of those conditions, has varied, or according as an Arbitrary Power has directed. And the facts now stated are those which most distinctly show that the universe is under the dominion not only of laws, but of a Will superior to those laws, and capable both of laying down those laws, and of altering them at pleasure. Either the first organic germ in any species of plant or animal must have been formed without a parent, or the first adult must have been formed without a germ; and in either case, knowing that the whole existing species are of not more than six or eight thousand years standing, we may say with certainty that the species now existing is a living witness of a miracle.

I think it important to reflect a little on this subject in the present condition of science and of religion, chiefly because I cannot help thinking that, owing to misconception, some of the terms used in defence of the doctrines of religion have appeared inconsistent with one another, as well as with the conclusions of science.

[*To be continued.*]

Illustrations
OF
HOSPITAL PRACTICE:
METROPOLITAN AND PROVINCIAL.

GUY'S HOSPITAL.

EMPYEMA PRESENTING IN THE LUMBAR REGION, AND DERIVING PULSATION FROM THE PROXIMITY OF THE LARGE VESSELS.

Under the care of G. Owen Rees, M.D.

We are indebted to Dr. Owen Rees for the notes of a very unusual case, in which a collection of fluid, originating, no doubt, in empyema of the left pleural cavity, appeared as a pulsating tumour in the loin, bearing a superficial resemblance to aneurism. This pulsation was accounted for by the course of the fluid, which brought it into direct relation with the great vessels of the abdomen. The notes were drawn up by Mr. Rand, the clinical reporter in charge of the case.

Daniel Brooks, aged 9, was admitted into Job Ward on January 13th, 1858, under the care of Dr. Rees.

Previous History. He describes himself as having been healthy, as far as he knows, until eleven months since, when he was admitted into Guy's Hospital, under Dr. Hughes, with what appears, from the record of his case, a decided case of pleurisy, with inflammatory effusion on the left side, the symptoms of which soon subsided, and he was in a few weeks enabled to return to school. Three weeks ago, whilst she was washing him, his mother observed a swelling in the lower part of the back; this has given no pain either before or since its discovery, and he is not aware whether or not it has increased in size.

Present Condition. He is a fair complexioned boy, spare and of delicate aspect, and of somewhat more than average intellect. The chest is prominent in front, and rather deep from before to behind; the lower true and false ribs are more prominent on the left than the right side, with the intercostal spaces pressed out on a level with them. On the right side, the ribs rise and fall naturally; there is resonance to percussion; the vesicular murmur is healthy, almost puerile; the left side rises but little on deep inspiration; there is total absence of vesicular breathing throughout the lower half of that side, and no vocal fremitus. The heart occupies the centre of the chest; its pulsation is evident below the ensiform cartilage; at this point the sounds, which are natural, are most distinct. The abdomen is soft and yielding. On the left side of the spine, above the crest of the ilium, is a tumour, rounded in shape, with a diameter of two and a half to three inches. It conveys to the touch a sense of fluctuation; the fluid is apparently not deep seated; there is no pain, redness, or heat of the integument covering it; and, on applying the stethoscope, a distinct pulsation is experienced which is synchronous with the arterial pulse. There is no tenderness or irregularity in the course of the vertebral column. The tongue is very slightly furred, red at the tip and edges. The appetite is good; the bowels are daily relieved; the urine is healthy.

January 14th. He was ordered to have half an ounce of cod-liver oil three times a day, and to have a linseed-meal poultice applied to the loins; and middle diet.

January 18th. The tumour has slightly increased in size.

January 21st. The swelling now visibly rises with each systole of the heart's action. There is now a little pain produced by pressure.

January 28th. The wall of the tumour is becoming thinner, the skin much discoloured. He suffers hardly any constitutional symptoms, and has somewhat improved in appearance since admission.

February 2nd. In consequence of the oil producing nausea, he was ordered ten minims of tincture of sesquichloride of iron, in infusion of calumba, three times a day.

February 9th. The tumour has now attained the size of a large orange; the pulsation is very strongly marked. The patient's health seems hardly so good as formerly.

February 11th. The assistant-surgeon, Mr. Bryant, to-day explored the tumour with a fine trocar and cannula; and, pus having been discovered, it was opened with a lancet, a few ounces of pus evacuated, and a poultice applied. On measuring the circumference of the chest over the lower part of the ribs, it is found that that side which appeared the largest, from the ribs being pushed out, is in truth an inch less than the healthy side.

February 13th. The free discharge of the contents of the abscess is somewhat prevented by the opening becoming obstructed by flakes of corpuscular lymph. The pulse is small and weak, 120.

February 15th. This morning the wound, having for a short time been obstructed, reopened, and a large quantity of healthy pus, amounting to nearly two pints, was evacuated. He still suffers but slightly in general health, and complains of no pain. Ordered to take a chop daily, and three ounces of wine.

February 24th. The abscess still discharges freely. Poultices are still applied. The prominence of the left side of the chest is much less marked; and a decided lateral curve exists in the spine, the convexity looking towards the healthy side (right).

March 6th. There is now a considerable amount of curvature of the spine towards the right side, producing a striking alteration in the conformation of the chest, compared with the appearance presented on admission; the *right* side of the chest being now very prominent, but perfectly resonant, whilst the left is flattened, but remarkably dull. The impulse of the heart is best felt just to the left side of the lower end of the sternum, the apex being apparently tilted up more than formerly, in consequence of the subsequent curvature. The abscess is still discharging very freely; the patient's health begins to suffer; pulse 110; tongue clean; appetite moderate; with frequent flushing of the face.

March 13th. The hectic fever is now strongly marked, and the patient is evidently losing flesh. He has again unsuccessfully attempted the cod-liver oil, and is now taking half a drachm of syrup of iodide of iron, in equal parts of infusion of quassia and calumba, three times a day. The walls of the abscess are somewhat contracted; the left side of the chest is still very dull; yet the neighbouring respiration is much more evident; bronchophony is heard lower down, and, at the apex of the lung, puerile breathing.

March 19th. Harsh respiration may now be heard over almost the whole of the left lung, and loud ægophony; there is still a good deal of dulness; he is certainly losing flesh. He is ordered to continue the mixture, and, in addition, to take two drachms of glycerine three times a day.

March 30th. He perspires profusely. From this time he fell into a hectic condition, and continued to sink, without any symptoms calling for particular note.

April 20th. Slight convulsions have at intervals occurred, and partial paralysis of the right side is evident. He is quite unconscious.

April 21st. He died.

Autopsy, six hours after death. The body was extremely wasted. The surface of the brain presented the appearance, not of acute disease, but of chronic wasting. The subarachnoid spaces contained a large quantity of serous fluid. On the sides, a small quantity of purulent fluid was seen, and a few tubercles. At the base was a small quantity of tough lymph, with tubercles; and in the fissure of Sylvius, on each side, the tubercles were in great abundance; they were numerous, also, in other parts. The lateral ventricles contained an increased quantity of fluid; the surface of them, as well as of the fourth ventricle, was granular all over. The left lung was contracted to a small space, and occupied the upper part of the chest. The lower half of the chest constituted an abscess with the diaphragm below: a long sinuous opening passed behind this muscle for about six inches to the loin below, where it was emptying itself. The left lung contained tubercles at the upper part, whilst the lower lobe of the right lung was consolidated by red hepatisation. The heart, with its lining membrane, was healthy; as likewise the abdominal viscera. Not a trace of tubercle could be discovered in the peritoneum.

BIRMINGHAM AND MIDLAND COUNTIES EYE INFIRMARY.

REPORT OF THE CHIEF OPERATIONS PERFORMED ON IN-PATIENTS DURING APRIL AND MAY* 1858.

By J. Vose Solomon, F.R.C.S., Surgeon to the Birmingham and Midland Counties Eye Infirmary; formerly Honorary Surgeon to the Birmingham General Dispensary.

Lens. *Seven patients.* In three cases of idiopathic double cataract, the upper section of the cornea was preferred, and the patients recovered from the operation with the ability to read ordinary-sized print. In one case, the eye was tolerant of light on the tenth, and the patient left the house perfectly well on the sixteenth day of the operation.

In a case of *double* cataract of *traumatic* origin, the left lens had been opaque twelve years; it was one-fourth smaller in its transverse diameter than normal. Thirteen days after its division into small pieces, which were pushed into the anterior chamber with a cutting-needle, "linear extraction" (Gibson's operation) was performed, and sight restored. The cataract in the right eye was caused by a violent blow received on the part ten days before admission into the Infirmary; the lens was driven back in a direct line into the vitreous body, whereby the posterior chamber was considerably enlarged. It was not until the pupil was dilated by atropine, that the change in the position and in the transparency of the lens could be ascertained. In this eye the capsule was carefully opened by a fine needle passed through the cornea, and some of the superficial lens matter broken up, as a preliminary step to its extraction at a subsequent period through a small section of the cornea.

There were two cases of *dislocated* lens. In one, a small thin nucleus, the remains of a lens that had been reclined two years ago, occupied the anterior chamber. The sight was very good after its removal. In the other case, the lens lay on the upper and outer part of the right anterior chamber; on extraction, it presented a crescentic form, resembling somewhat a small caterpillar. The eye had been injured twenty-five years since, and subject to repeated inflammations; a mere perception of light being at the time of admission the extent of its vision; its companion suffered from sympathetic neuralgia, which was entirely cured upon the subsidence of the tedious inflammation and occasional hæmorrhages which followed the operation. In consequence of the disorganised condition of the eye, Mr. Solomon was desirous in the first instance of removing the whole globe, but the patient would only consent to the minor proceeding above mentioned.

In the case of a youth, whose left eye was blind and intolerant of light, in consequence of a burn which had cicatrised, sympathetic mischief being also present in the fellow organ, the lens and a small portion of vitreous body were removed, with a view to sink and tranquilise the globe. The operation did not however fulfil the object for which it was undertaken; but the globe suppurating, excision was had recourse to, from which the parts rapidly recovered, and the sympathetic disorder was cured.

Iris. *Six patients.* Gräfe's operation (iridectomy) was performed in two cases: the first, on May 10, on a patient affected with complete synechia posterior, the result of a blow upon a much diseased eye; the second, on the 23rd of the same month, in a case of chronic glaucoma. The first case was quite blind; the operation gave the power of distinguishing the outline of a man's features, and corrected a bosselated condition of the iris.

The progress of the case of glaucoma at the end of June was arrested, and in July vision was improved.

In a patient whose right pupil was closed from past chronic syphilitic inflammation of the globe, and who was importunate for an operation, White Cooper's operation was performed; the blunt cannula forceps was introduced through a small wound made by a broad needle and a piece of iris separated in a direction downwards and inwards. A pupil excellent in regard to size and shape resulted, and a better perception of light was obtained; the vitreous was green.

In a man who had a large and dense opacity of both corneæ, the right pupil, which was completely eclipsed, was drawn by the blunt hook upwards and inwards (Tyrrell's operation) opposite the most translucent portion of the cornea. Binocular vision has been since much invigorated. He was discharged cured on the seventh day.

A child, three years of age, whose *right* eye presented a large and dense staphyloma, all trace of true cornea being lost, and whose left cornea was also staphylomatous and impervious to light, except at its outer third, where some semi-transparent tissue existed, behind which the outer rim of the iris, widened by stretching and lying close to the cornea, could be discerned, was treated in the following manner. A broad needle was introduced at the centre of the outer margin of the sclerotica, and made to penetrate the iris near its ciliary border; then carried behind that membrane, and brought out close to its staphylomatous attachment. On the withdrawal of the needle, a Tyrrell's hook was used to break through and remove the iris-tissue that separated the incisions. By this procedure, a good transverse pupil was obtained, an anterior chamber established, and the ability to see large objects restored. On the same day the right eye was excised. Neither of these operations excited inflammation, and the child left the Infirmary perfectly well on the tenth day.

In another child, aged five years, the left globe was shrunk and disorganised from a traumatic injury. The pupil of its fellow was filled with organised lymph, the result of a sympathetic iritis; and the vision rendered so indistinct that the patient had suffered two severe falls, from one of which the little finger was fractured, from the other the collar-bone. After the application of atropine, the lower and inner margin of the pupil was found to have receded from the lymph; and at this point Mr. Solomon slit the iris downwards and inwards, a small pyriform pupil, with normal vision, being the result of this procedure. Excision of the disorganised eye was done on the same day. Neither operation excited inflammation, and the boy left the Infirmary on the seventh day.

Excisions of the Globe. *Seven Patients.* The following were the cases:—

One case of chronic glaucoma and complete amaurosis, was excised as a preliminary step to iridectomy of the fellow eye, which was affected with glaucoma.

Two globes previous to artificial pupil operations recorded in this report.

One case of suppurating globe, sympathetic disturbance being present in the fellow-organ.

One case of encephaloid cancer of the globe and orbit,

* In consequence of the occurrence of erysipelas and small-pox in the wards, this report extends only to May 23rd.

attended by severe brow headache and symptoms of cellulitis of the orbit.

One case of chronic choroiditis and complete amaurosis, the companion eye being affected with choroiditis.

One case of chronic ophthalmitis, the fellow eye being affected with retinal congestion. In every case, excepting one, the excision afforded an unequivocal advantage to the patient.

Adhesion of the Eyelid to the Globe. In two cases in which after a burn the eyelid had become rather extensively adherent to the globe, Mr. Solomon dissected back the connecting band, and passed three fine sutures through its free extremity. The dissection has continued rather more posteriorly than where the conjunctival fold exists in the healthy eye; just behind this point, a narrow slit was made through the substance of the lid, through which the apex of the flap was drawn out and secured in position by means of the sutures which had been previously passed through the wound. In this manœuvre the flap was doubled upon itself, and made to supply the place of the conjunctival fold that the burn had destroyed, and at the same time to oppose its unabraded mucous surface to the cut conjunctiva of the globe. In one case, as the connecting band was short, Mr. Solomon slit up the outer commissure for a short distance, without which this plan of operating could not have been carried out. In each case chloroform was administered; and with a view to keep the parts at rest, the globe was secured in an inverted position by means of a ligature passed through a slip of conjunctiva near the outer rim of the cornea and the integument on the bridge of the nose.

Original Communications.

A FEW REMARKS ABOUT SQUINT, ESPECIALLY EXTERNAL SQUINT.

By Haynes Walton, Esq., Surgeon to St. Mary's Hospital, and to the Central London Ophthalmic Hospital.

There are not a few medical men who doubt that strabismus may be removed by an operation; that is not to be wondered at. It would not be difficult to find a goodly number who question the virtues of orthopædic practice, and several other long recognised and valuable additions to practical surgery. Within a few weeks I operated, in private, on a case of internal squint, in the presence of a modern surgeon, to my entire satisfaction, and with the best results. My medical brother, as I supposed, was pleased; but his real sentiments were conveyed to me on our way to town, by this question, asked with great solemnity: "Without any reserve, do you really think that the operation will benefit the child?" It would certainly be easier to deal with an oblique eye, or, perhaps, most physical deformities, than with this gentleman's prejudices. But many, who are even well acquainted with the beautiful results now obtained in this variety of the affection, think that external squint is never remediable. It is to combat this in particular, to publish a few facts, and endeavour to counteract to some extent, an impression which is more or less abroad, of my discountenancing surgical treatment, that I write.

The external, as compared to the internal abnormal position of the eye, is rare, and it is undeniable, that with this absolute numerical disparity, there is a relatively less number that are admissible for an operation, that is, in which success can reasonably be expected. As in convergent squint, one eye may be affected, or both be involved; but, unlike it, the detection of the single or the double implication can be so readily, and unerringly made out, that there is not the same necessity for certain indispensable tests.

I avoid going into the pathology of strabismus, as it is quite beyond the scope of this short, and, as it is intended, practical communication.

The class of cases in which the greatest relief can be afforded, is that in which one eye only is turned out, and the vision is but slightly affected; and the less this function is interfered with the more certainly will operative treatment be beneficial. But the great criterion for our guidance in the selection of cases, that is on which our prognosis should be founded, is the manner in which the eye can be righted, when the other is covered, or closed. When I find that it can be brought to the centre of the orbit, and maintained there; and, above all, if it can be so kept for a few seconds after the other has been opened, I strongly recommend an operation. I give equally strong assurances of success, when without the sound eye being closed, the deformed one can be brought parallel with its fellow, and so kept for a short period.

During this week, I have had the satisfaction of examining a young woman, on whom I operated several months ago, through the recommendation of Mr. Ellison, of Windsor, whose case was of this latter favourable kind. A well marked squint had existed eight or nine years, and the eye was presbyopic or long-sighted. I operated in expectation of the fullest benefit. An immediate improvement followed, but perfect parallelism was not restored. Now this partial effect is the usual occurrence in external squint; I looked for it, and with patient expectation awaited the completion. At the end of a week, when I dismissed her, the natural position had nearly been attained; and now, after the lapse of four months, I find as great perfection as can possibly be accomplished. I defy any one to tell, from mere appearances, that the eye had ever squinted, or that a surgical operation had been done. There is almost complete restoration of sight.

Under less encouraging circumstances I often recommend surgical treatment, well knowing that even when the highest result cannot be accomplished, improvement will ensue. There are, however, cases, such for instance in which the eversion is so extreme, and the power of inversion so limited, and with which I have never failed to find a very defective retina, that I should decline to interfere. Three weeks ago I operated successfully, in private, in the presence of Dr. Sieveking and Mr. Farrant, on a young lady of eighteen, who had squinted two years. She could not see to read the largest type with the eye affected, nor could she recognise acquaintances; *but* she could bring the eye to the centre of the orbit, and maintain it there so long as she directed the sound one to any distant object.

Concerning double external squint, the results of operations have been less satisfactory, because the circumstances under which I have operated, and which are those that are, I believe, usually met with in the double affection, are less promising. Yet when the eyes are involved in an equal degree, and either can be singly used, and made straight, the double operation may be confidently undertaken. Like the solitary deformity, there are less favourable states which will yield less perfect ends.

The last double operation I did at the Ophthalmic Hospital, but a fortnight ago, was no less pleasing to myself, and those of my colleagues that assisted me, than to the patient, a woman twenty-five years old, who said she had squinted since quite a girl. She used one eye at a time, and employed either apparently indiscriminately. She saw only distinctly enough to do coarse needlework, and blundered over small type, but could read large characters. In fourteen days after the operation she could read and work better, and the eyes were as nearly as possible in unison with their movements. Sometimes I detected a very slight inequality, but so slight, that it was not likely to be remarked by a casual observer.

I operate in this manner. Having retracted the eyelids with the double spring wire retractor, I make, just over the insertion of the external rectus, a short vertical slit in the conjunctiva and the subconjunctival tissue, which latter may be so thin as scarcely to be recognised, or so dense as to demand attention and carefulness in cutting through it. Then I introduce the blunt hook below the muscle, which I secure and sever close to the sclerotica. I complete the process by bringing the edges of the conjunctival wound together by one or two sutures; if a single one does not affect the desired adjustment, I apply a second. This does not cause the slightest irritation, and possesses all the advantages that are to be got from the accurate closing of incised wounds, as compared with tearing them open. I do not practise the so called subconjunctival division of the muscle, as suggested by Monsieur Guérin, for internal squint, by which he hoped to overcome the dropping of the caruncle, and other defects arising from extensive dissections at the corner of the eye, so common at that time. As my opinions on this point have been made so public by the reporters of the several medical journals, as well as by some of my pupils, I consider it useless to advance them here. My objections to it must be tolerably well known. I would merely say, for the benefit of those who are as yet beginners in ophthalmic surgery, and may feel disposed, from what they have heard of Guérin's operation in internal squint, to try it, (and I am sure if they do that they will be disappointed), that the theory does not apply to an operation on the external rectus, and that the different anatomical disposition of the parts about the outside of the eye, renders the division of the muscle by the French system still more uncertain.

Transactions of Branches.

LANCASHIRE AND CHESHIRE BRANCH.

RECOLLECTIONS OF A PROFESSIONAL TOUR IN HOLLAND.

By James Vose, M.D. Physician to the Liverpool Royal Infirmary.

[*Read June 30th.*]

Although Holland has long ceased to attract much of the world's attention, yet, during the period which intervened between the decline of Spanish greatness and the rise of that of England, her renown in politics, in war, and in the arts, was great and well deserved. All lovers of freedom sympathise with the heroic and successful struggle for liberty, which was waged by the United Provinces against the iron tyranny and the gigantic power of Spain. Few statesmen stand upon a loftier pedestal than Barneveldt, Grotius, and De Witt, whose genius and patriotic earnestness have immortalised them. The lives of Van Tromp, and De Ruyter, who both fell in action, were conspicuous for enthusiastic valour; and, under the latter of these admirals, the Dutch fleet performed the daring exploit of "sailing up the Thames, and burning the ships of war at Chatham." In the fine arts, we find the names of Rubens, Van Dyck, the Teniers, Paul Potter, Cuyp, and Rembrandt—worthy rivals of the masters of Italy. Classical literature can never forget what she owes to Vossius, Gronovius, and Burmann: while the progress of the medical sciences is inseparably linked with the labours and discoveries of Vesalius, Ruysch, Boerhaave, Albinus, and Camper. Lastly, Holland can never be viewed with indifference by our nation; remembering, as we do, that from Dutch soil sprang the great prince, who, after rescuing his own land from the unbridled ambition of the French king, saved England from the polluting despotism of the Stuarts. Thus it appeared that a few personal recollections of a country, at one time so famous, might be not wholly uninteresting to this meeting.

An energetic steamer made her way from London to Rotterdam in twenty-six hours. This is a busy port—its streets, for the most part, are narrow; but in the neighbourhood of the chief canals the buildings are large, and stand at a considerable distance from the water's edge, which gives an air of much spaciousness. None of the streets or squares have their names inscribed upon the corner houses; an omission common in many of the Dutch cities, and sufficiently embarrassing to the stranger. The cathedral is a vast, but inelegant building; its tower is lofty and bulky. The chief part of this edifice is of brick; but here and there stone has been employed. There is a bronze statue of Erasmus upon one of the bridges of Rotterdam. The scholar is represented in his doctor's cap and gown, and he holds an open volume. On the pedestal are inscriptions in Latin and in Dutch.

The females of the humbler class, in this place, are very neat and cleanly in their attire, and wear much white about their persons; while those in the upper ranks appear to dress more in accordance with English than with French fashions. The complexion of many of the women was singularly clear and delicate.

The distance from Rotterdam to the Hague is about twelve miles, and is performed in two hours by the public conveyance. In passing through the towns of Holland, a walking pace is the only one which is permitted by authority to the diligences. Greater speed, it is feared, might unsettle the foundations of the houses, and displace or injure the pavement, which is composed of tiles. The vehicle wherein you find yourself, during this drive to the Hague, is a capacious, close coach, conveying nine inside passengers, and having no outside places. Its atmosphere was darkened by volumes of tobacco-smoke issuing from the long clay pipes of the travellers, who indulge themselves in this way without the slightest reference to the feelings of strangers or females; but, in a country where the practice of smoking is so universal, that even the distances between places are reckoned by the number of pipes consumed in performing them, this did not surprise me.

The road was very hard and even, extending during the whole way close to the canal, and on each side it was flanked by trees. Much of the country, which was uniformly flat, was inundated, and many aquatic birds were sporting among the rushes bordering the water. The cattle grazing in the pastures skirting the road were diminutive in size, and were all covered with coarse cloth, kept in its place by cords fastened under them. The scene was much enlivened by the windmills, of which there were great numbers in many directions.

The principal parts of the Hague are very open; the houses being large and lofty, and the streets broad, and planted with trees. The chief attraction to strangers in this capital is the *Musée Royal*, a national collection of pictures and antiquities. There are several works by Rembrandt and his immediate school here; of these the finest is perhaps a large painting of Tulpius giving an anatomical demonstration. The intense interest expressed by the features of his listeners, and the grouping, coupled with the rich colouring of the heads, struck me as very masterly. The *chef d'œuvre* of this gallery is the well known Bull of Paul Potter. The truth to nature, the energy, and the accurate drawing, displayed by the artist in this performance, baffle description. There is singularly little either by Teniers, G. Douw, Ostade, or Rubens here. Cuyp has but one picture, by no means a fine specimen of the master. Van Dyck has two or three portraits; but better works by the same artist may be seen in England. Upon the whole, this gallery does not illustrate the Flemish school of painting as satisfactorily as even Paris or London do.

The antiquity department of the Royal Museum, as it is not very correctly termed, need not detain us. It consists chiefly of specimens of the weapons and implements of agriculture and domestic economy employed by the South Sea Islanders, Japanese, and other distant nations, with whom the Dutch have been in the habit of trading.

Two horses yoked to an immense vehicle, without describable shape, and containing seats for twelve inside passengers, drag the traveller from the Hague to Leyden in about an hour and a half—the fumes of tobacco, as before, concealing the outline of even your next neighbour's person.

The Natural History Museum of Leyden is the principal one in Holland. With the exception, perhaps, of the Garden of Plants in Paris, Comparative Anatomy and Zoology may be more successfully studied here than in most places. Many galleries are devoted to these departments of science, and the specimens continue to increase with great rapidity. I was particularly struck with the skeletons and stuffed preparations of the *simiæ*, reptiles, and fishes. Their admirable preservation and arrangement must be in the highest measure satisfactory to the philosophical student. Cuvier has bestowed many valuable things upon this Institution, which also contains an extensive collection of minerals; but in this last respect the Museum of Leyden is much inferior to some of our own.

The church of Saint Peter's is large, but cold, formal, and devoid of all ornament. To us, however, it was interesting, from containing the monument of Boerhaave. A simple urn supported upon a pedestal, inscribed with the well known line, "Salutifero Boerhaavii genio sacrum." In the same church there is a fine bust of the anatomist Camper.

In perambulating Leyden, I was surprised by observing a large accumulation of sand in front of a private house; this it seems is the material employed in Holland to deaden noise near the habitations of the sick—straw and oak-bark not being used for the purpose, as among us.

The dull streets of this town are occasionally enlivened by the presence of natives from the remote provinces. The women of Friesland are readily known by the peculiar and picturesque mode of dressing the hair, which is flattened to the sides of the head, and kept so by broad and thin plates of gold; an expensive ornament for the peasant class, but one which, I was informed, any privation is cheerfully borne to obtain.

A road still familiarly known to the students of Leyden as *le Chemin de Boerhaave*, leads to the country seat of that renowned professor, which is situated in a plantation. The house is large, and has been built very much after the old baronial fashion. Before reaching the courtyard, you pass over a small bridge, and then under a gateway, the entrance to which was guarded—the place being still inhabited—by two savage dogs, whose wrath was kindled to a high pitch by our unwelcome intrusion at an hour when the moon was rising over the turrets of their master's mansion. It is said that this house was given to Boerhaave by an English nobleman, whom he succeeded in curing of a serious malady. The peer, while under Boerhaave's care, lived in it for the advantage of country air; and, upon leaving Holland, he testified his gratitude to him in the above most unusual way.

The Museum of Antiquities at Leyden contains a greater number of Egyptian remains than are to be found anywhere, except at Turin; there were at least thirty mummies which had not been even unrolled. Some instruments by which the brain used to be extracted through the nostrils, and the naked body of a young child, displaying the opening in the side through which all the internal viscera were wont to be removed, attracted our attention.

My interest was a good deal excited by an examination of several models of Greek tombs contained in this museum. These have been so constructed as to allow of the interior being brought into view, by removing their roofs. The contents were a small plaster skeleton stretched in the position of a corpse, and the remains of armour, as a helmet, military girdle, and *ocreæ*, lying close to those parts of the body upon which they had been placed at the time of interment, but from which they had fallen in the process of decay. The inner walls of the sepulchres were covered by allegorical representations of the events in which the deceased had been concerned during his career on earth, and the floors were furnished with urns, lamps, and vases.

We went to the Anatomical Theatre, for the purpose of hearing a lecture. The room is small, and when the professor has no parts or preparations to exhibit, he ascends a sort of pulpit, and thence addresses his class. When, however, anything has to be shown, he sits at a table surrounded by seats for the students. Physiology was the subject of the discourse, on the occasion of our visit. There were not more than twenty persons present, and the instruction, which was given in Latin, continued about three quarters of an hour. When over, I went into the Museum, which, though not extensive, is well arranged for the purposes of scientific instruction. The anatomical preparations, human and comparative, are disposed in groups, admitting of their structure and uses being illustrated at one and the same time. The series commences with the bony parts concerned in the process of mastication, then follow other portions of the alimentary canal, until all the organs subservient to the function of digestion are brought into view. The same has been done with the cutaneous and other systems.

Albinus's preparations are not numerous; they are for the most part small, but in a very fine state of preservation. Those which are injected, display the utmost delicacy of manipulation. The bottles containing them are of English manufacture, their form being chiefly cylindrical, and many of them have been so accurately closed, that it had not been necessary to renew the alcohol, since the death of Albinus in the last century. There is only one specimen here from the hand of Ruysch, and it is in no respect remarkable. Ruysch professed at Amsterdam. One of his museums is in Russia; the other is scattered over Europe.

The pathological department of the Leyden Museum appeared to be meagre, and the specimens composing it were but indifferently arranged. There was, however, a good collection of urinary calculi from the human subject, and from the inferior animals. We also saw a few wax models of rather humble pretensions, and an extensive and interesting series of crania, illustrating the configuration of the head in the varieties of mankind.

On visiting the Hospital, I heard a clinical lecture, which was given in the Latin language, and consisted chiefly of commentaries upon some passages in Hippocrates and Boerhaave. The lecture concluded, we went into the wards, where the professor made valuable practical remarks, in Latin, at the bedside of each patient, interrogating the clerk, under whose care the case had been placed, as to its nature, probable progress, and termination, and requesting him to suggest the remedies which the symptoms seemed to indicate, together with a form for their exhibition. He further conversed familiarly with the pupils, upon subjects relating to the condition of the patients. This bedside system of instruction, which was conducted in the same manner by the surgeon to the Hospital, as well in the obstetric as in the strictly surgical wards, appeared to be pregnant with advantage to the students.

The Leyden Hospital, supported for the purpose of clinical teaching exclusively, does not contain more than forty or fifty beds, which are placed in five wards; two of these are medical, two surgical, and one obstetric. In this last, about sixty women are delivered annually. The Hospital is well ventilated and extremely clean, and the beds are provided with ample curtains.

The Botanical Garden in this University rather disappointed me. There was an extensive, but not a beautiful collection of exotic plants, many of them from the Cape of Good Hope. The gardens are formal; cold, from a want of evergreens; much exposed to the elements; and not laid out with any great attention to taste. The tree of Boerhaave, as it is termed—a *fraxinus ornus*, engrafted upon a *fraxinus excelsior*—was still alive, but drooping fast.

The academical session at Leyden, I learned, commences in September, and ends in June. There is a recess of three months, and one or two short vacations besides. Dissection takes place from January to March only.

The canal boat from Leyden to Haarlem was four hours on the way; but the novelty of the conveyance, and the loveliness of a moonlight night, prevented all feeling of tediousness. These vessels differ little from the same boats in England; they are so completely roofed in that but little deck is left, and while one man steers, the other attends to the locomotive—a single horse.

At Haarlem, there was only time to hear the renowned organ in the cathedral, after that of Fribourg the most powerful instrument in the world; to glance at the suburban villa, or rather palace, of Hope, the banker; and to see, in the marketplace, the statue of Lawrence Coster, who contests with Guttenberg of Mayence, Faust, and others, the honour of inventing the art of printing. The story is that Coster, when wandering in the woods which surrounded his native city, was in the habit of amusing himself by stripping small portions of bark from the trees, and forming them into letters; after arranging these into words, he conceived the idea of applying them to paper, having previously pressed them with a roller moistened by ink. Perceiving that the figure of the letters remained upon the sheet, he constructed his types afterwards in lead, and then in tin. It was with these last that he printed the work entitled, *Le Miroir de Notre Salut*. A *basso-relievo*, upon the pedestal of his statue, represents the circumstances which led Coster to a discovery by which he has been immortalised.

In order to reach Amsterdam, the traveller has to undergo another canal voyage; but this time it occupies little more than two hours. Here there is a picture gallery at the *Musée du Royaume des Pays Bas*, illustrating, in an admirable manner, the Dutch and the Flemish Schools of Art. The celebrated work by Rembrandt, known as *Le Garde de Nuit*, which shows so remarkably this master's knowledge of *chiaro-oscuro*, is here. So is Helst's painting, representing a feast given by the National Guard of Amsterdam, in commemoration of the Peace of Münster; and although the subject belongs in some measure to vulgar nature, yet, as a study for heads, it appeared almost to rival Leonardo da Vinci's *Last Supper*, and the *Marriage of Cana*, by Paul Veronese. Besides the *Bear Hunt* of Paul Potter—a picture marked by terrific energy of action—there are three other productions from the hand of this artist, one of which exhibits Orpheus assembling the tenants of the woods and caves around him, by the melody of his lyre. The animal kingdom is here figured, from the grasshopper to the elephant, with extraordinary truth to nature; and so elaborately has this work been finished, that it bears as close an inspection as a miniature.

The best among numerous marine pieces by Van de Velde, in this collection, is one representing an event not flattering to our nation—an English flagship, *The Royal Prince*, striking to a Dutchman. A small boat, in which the artist caused himself to be conveyed to the scene of action, has a place in the foreground.

A diligence took us in four hours from Amsterdam to Utrecht. In this University, Bleuland's Anatomical Collection, consisting of two extensive galleries, is open to the public. One of these contains an immense number of preparations, illustrative of human and comparative anatomy. In the other are placed the zoological specimens. Beautiful and interesting as are the former, particularly where displaying, by injection, the structure of different organs belonging to inferior animals, they scarcely bear comparison with the natural history department. In this are contained the most perfect, and, as regards preparation, the most elegant skeletons which I have ever seen. The whiteness of the bones, the preservation of the ligaments, and the skill with which the characteristic attitudes of the various animals have been maintained, are most remarkable. There are here also a fine collection of fishes and serpents, numerous specimens in spirits, and, in short, every means for the successful study of comparative anatomy and zoology.

My chief object in visiting Utrecht, however, was to examine

the preparations of Van der Kolk, a professor to whom I had been furnished with an introduction. This gentleman has written upon the necessity for cultivating pathological science, with greater minuteness of attention than has hitherto been bestowed upon it. His private museum contains a large number of rare and valuable specimens, many of which were quite novel to an Englishman. The most patient labour must have been bestowed in forming this collection, entirely the work of his own hands. But his perseverance has been rewarded; for more beauty and delicacy, in conjunction with the production of important and intelligible results, have perhaps never concurred, in the preparation of animal structures.

The first organ brought under my notice was the eye, in health and in disease. Amidst numerous specimens, the following especially interested me:—The membrane surrounding the lens, injected both at its anterior and posterior surfaces; an injection of the vessels in the membrane of the aqueous humour; the membrane covering the anterior aspect of the cornea, injected; a capsule surrounding an opaque crystalline, injected. In these cases, the vessels are much larger, and therefore more readily filled, than when the lens is in a natural state—a fact tending to prove the inflammatory nature of cataract. A preparation of an eye, upon which the operation for cataract had been performed, showed masses of coagulable lymph deposited between the choroid coat and the retina. In another specimen of the same kind, the portions of fibrine had undergone organisation, and the vessels of the so-formed false membrane were filled with injection. In another eye, the capsule of the lens had been freely lacerated by the surgeon; its cavity displayed a soft but solid substance, by which it was about half filled. This matter I supposed to be the *débris* of the lens, but M. Van der Kolk told me that it was a fibrinous deposit, resulting from the inflammatory action following the operation, the lens having been already wholly removed. In another eye, which had been the seat of inflammation, injection had been thrown into adhesions running between the iris and the capsule of the lens. A preparation of an eye and its appendages, where Egyptian ophthalmia had taken place, was shown me. The ophthalmic artery had been filled with injection, and the preternaturally vascular state of the palpebræ and the Meibomian follicles was very conspicuous.

In one specimen of an ear, the arteries of the membrana tympani had been filled; in another, the veins. M. Van der Kolk remarked, that these latter vessels are exceedingly numerous in this membrane, and are the structures which Sir Everard Home mistook, formerly, for muscular fibres. In another ear, the parts composing the labyrinth, especially at the cochlea, had been most successfully injected; the arteries with red, and the veins with dark wax. Again, the blood-vessels running along the crura of the stapes, and traversing the membrane stretched over the space between them, had been filled to their minutest branches. The superficial absorbents of the heart had been distended with quicksilver. A beautiful preparation. There is a deeper order of these vessels, which have been injected in the quadruped, but not, as yet, in the human subject.

In a fish, the lymphatics, arteries, and veins of the branchiæ, had been filled; the first with mercury, the others in the usual way. This specimen also exhibited, artificially prepared, the singular communication existing in fishes between the chief trunk of the absorbent system and a large artery and vein, which hold their course along the interior of that vessel.

The skin from the hand of a gouty patient had been so prepared as to show the small veins choked with the matter of chalk-stones.

There were numerous specimens illustrating the vascularity of adventitious membranes. In one of these, the lymphatics had been injected with quicksilver; they were perfect, and evidently provided with valves. Thus we have anatomical proof, that false membranes are endowed with absorbents, as well as with blood-vessels. This preparation was remarkably instructive and beautiful.

In phthisis, the Professor observed that, although the branches of the pulmonary vessels become sealed up and impervious by the adhesive inflammation, yet the *vasa vasorum* continue permeable, and become dilated even; thus contributing to the support of the circulation. These phenomena were pointed out to me in a preparation, which exhibited them very satisfactorily.

Several specimens were brought under my notice, where fibrous tumours, scirrhous growths, and encephaloid or medullary masses, had been injected. In all these, although abundantly supplied by arteries, there was an entire absence of veins. This phenomenon was altogether unexpected; and, feeling anxious to ascertain whether so singular a peculiarity of structure prevails, as a general law, among these heterologous formations, M. Van der Kolk proceeded to inject similar growths from the inferior animals, and with a precisely similar result. No veins could be detected, while the arteries received injection without difficulty. The manner in which the circulation takes place through these diseased structures, becomes a question. The professor thought it probable that some of the arteries assume the office of veins, and return the blood to the neighbouring venous trunks. A specimen was shown me, where medullary matter, lying in a large vein, had been injected; and another, in which the lymphatics of the same substance had been filled with mercury.

This professor's opinion of the nature of fungus hæmatodes, which he denies to be a species of the *genus* cancer, is singular. While scirrhus, cerebriform cancer, and fibrous tissue, he said, are devoid of veins, fungus hæmatodes is plentifully provided with them; and hence the peculiarity of its colour.

With my inspection of the museum of M. Schrœder Van der Kolk, ended the professional tour in Holland which I had proposed to myself; and I left Utrecht for Nimeguen. The aspect of the country, between these places, was dissimilar from what I had hitherto observed it to be in Holland. The soil was sandy; and we passed by many heaths or moors, and through woods which were, for the most part, composed of low and stunted trees. The approach to Arnheim was pleasing; and, as we descended the hill overhanging the town, we caught the first view of one of the largest branches of the Rhine, whose waters glowed under a setting sun, as they held their course through the fertile valley below us. The country here, bore a striking resemblance to many parts of England; and, after the monotony of canals, swamps, and unbroken low lands, by which I had been surrounded for many days, the variety which the landscape now began to exhibit was not to be viewed with indifference.

SHROPSHIRE BRANCH.

THE USE OF GUTTA PERCHA BOUGIES.

By Samuel Wood, Esq., Surgeon to the Salop Infirmary.

[*Read July 19th.*]

Gentlemen,—It is one of the advantages of our Association, that we can, at meetings like the present, give a few hints to instruct or guard our brother-practitioners by the relation of such cases as have fallen under our observation during the year. It is not by the record of the rarer cases in medicine or surgery alone that we derive most benefit; but the relation of some of the more frequent is often the most useful. I name this in the hope that more of our members may be induced at these meetings to favour us with a sketch of such of these cases as have either presented some unusual features, or have been treated by a better or more scientific method.

The few observations I am about to make relate to the dangers attendant upon the use of bougies or catheters made of gutta percha. This very useful substance has been converted into such a variety of articles that it is not surprising to find bougies and catheters made of it. There is, however, a quality in this gum which it is well to be aware of—that, when *rolled* into a rounded form and kept for some time, it loses its tenacity and flexibility, and becomes brittle and friable. This is the case even when it is rolled in the thicker form of whips. The two cases which I shall bring before your notice are instances of the danger of its use in the form of bougies.

Case 1 was that of a patient who was admitted into the Salop Infirmary, under Mr. Stephens, for a troublesome gleet, which had resisted the usual remedies. A gutta percha bougie was therefore introduced, and retained in the urethra for half an hour. The patient attempted to withdraw it at the expiration of that time, when it unfortunately snapped off. The man felt it in the perinæum, and he endeavoured to push it forward, but was unable to do so, and it slipped back into the bladder. The forceps and some other means were used to extract it, in vain. The urethra was then dilated by bougies, not of gutta percha; and, the dilatation being easy, a No. 14 was soon introduced. Upon the patient's passing urine after this, a piece of the broken bougie, about one inch long, escaped, and was in a few days followed by three other fragments of about the same length. The portions of the broken instrument were not coated with any salt, and the patient was discharged; the man suffered comparatively little annoyance, there being an uneasy sensation in the bladder, and some pain in passing

urine, from the portions of the broken bougie striking against the neck of the bladder.

Case II. This case had a far different termination. William Gother, aged 30, a carpenter, pale, light haired, stated that, seven or eight years ago, he fell from the joist of a building, and injured his perinæum. An abscess formed there, which was opened, and he recovered. It left a hardness behind; and in about five years afterwards he had a decided stricture, which had been creeping on slowly since his accident. For this an instrument had to be used; and, unfortunately, a gutta percha bougie (No. 7) was broken in the bladder in July 1857. He was admitted into the Salop Infirmary, October 19th, 1857. The urine contained some mucus, and the man experienced pain in voiding it. By degrees a No. 11 catheter was introduced; and the patient was instructed to pass urine immediately on its withdrawal, but without success in removing the foreign body. The urine soon began to contain phosphates, and was loaded with ropy mucus; and his pain increased; and, as the bladder was beginning to take on a diseased character, the operation of lithotomy was decided on. The foreign body could now be clearly felt in the bladder, coated with concretions.

On December 15th, lithotomy was performed by myself, and the broken piece of bougie extracted. There was some little difficulty experienced in the withdrawal, as it was lying horizontally across the bladder, and rather firmly fixed at one end in the coats of it. The portion of the bougie (which was shown) was largely coated with phosphates; it was three inches long. Three grains of opium were given on the patient's being replaced in bed, and were continued every night. The patient went on well in every respect. The urine began to pass *per urethram* on January 1st, 1858. The quantity increased gradually as the incision closed, and on January 24th all the urine came by the proper passage. The wound healed, and he was discharged on January 30th, cured.

During the treatment, opium and the combined acids were administered, followed by the use of iron. For some time after the accident he experienced little pain or uneasiness, except in passing urine, when the fragment used to come into unpleasant contact with the neck of the bladder.

Remarks. It is probable that the accidental circumstance of the bougie having been broken into short bits, with the absence of stricture, facilitated the passing of the foreign bodies in Case I, which the length, the quickly formed phosphates, and the stricture precluded the chance of in Case II.

Reviews and Notices.

The British Army in India: Its Preservation by an Appropriate Clothing, Housing, Locating, Recreative Employment, and Hopeful Encouragement of the Troops. With an Appendix on India, the Climate of its Hills, etc. By Julius Jeffreys, F.R.S., formerly Staff-Surgeon of Cawnpore, and Civil Surgeon of Futtehgurh. pp. 393. London: Longman and Co. 1858.

This is pre-eminently the work of a philosopher and a philanthropist. A long residence in India has made Mr. Jeffreys not only well versed in practical knowledge regarding the modes of life there, but entitles whatever he may write on the subject of India to the respect and consideration of those who have the welfare of India, and of our relations with that great country, most at heart. His work is so comprehensive in its scope, as indicated by its title, so thoroughly demonstrative in its character, that the limits of a short notice can do little more than direct attention to the great and important subjects on which it treats.

There are most important lessons taught us by a study of the geographical distribution of health and disease; and, with the hitherto existing provisions for the sanitary condition of our army in India, we know that the field of distinction there "has been a great graveyard—a British Juggernaut". Our army medical historians tell us that our troops *do not become* acclimated there; that length of residence in the land affords no immunity from the diseases of that tropical climate, but, on the contrary, we have abundant testimony which proves that the mortality among officers and troops is greatest among those who remain longest in those climates. When we find, moreover, men of such experience and eminence as Johnson, J. R. Martin, Tulloch, Macpherson, Arnot, and Boudin, bearing testimony to these facts, we think that the topics discussed in the work before us merit the gravest consideration of the Army Medical Department, as well as of those who hold the high places of Her Majesty's Government, and especially those having to do with the War Department and administration of affairs in India.

The protracted residence of European regiments in India has been followed by most disastrous results. They "have melted away like spectres of a dream. A thousand strong men form this year a regiment: a year passes, and *one hundred and twenty* new recruits are required to fill up the broken column; and eight years having come and gone, not a man in the original thousand remains in the dissolving corps." Dr. Arnot has shown that the losses of the Bombay Fusilier European regiments averaged 104 per 1,000 per annum—a loss equivalent to the entire absorption of the regiment in nine years and seven months. In Bengal, also, similar statistics show that the European army there loses annually 9 per cent. of its numbers, giving a total loss in eight years of upwards of 14,005 men out of an army of 156,130. Facts like these are not only confirmed by many statements in Mr. Jeffreys's volume, but it contains much evidence to show that the casualties amongst the troops *exposed* to the climate of India are rather underrated. When addressing the Governor-General in Calcutta in 1834, we find Mr. Jeffreys writing—

"It is said—and the estimate, I fear, is a low one—that the mortality of our European corps *during peace* amounts in ten years to the whole strength of the regiment upon its landing in India, and that amongst men in the prime of life. So that, if the corps landed 1,000 strong, 1,000 men will die or be constitutionally destroyed in ten years. At £100 per man, the lowest assumed rate, this amounts to one lac of rupees in each corps per annum. In two months, at Cawnpore, a corps (of about 600 men) has, I believe, lost 100 men." (p. 182.)

Again, he says:

"It is not too much to affirm that, if the British forces in India, caparisoned as they are, should have *to keep the field continuously*, and with little support from native troops, the casualties from climate alone, after the first year, might be estimated at 50 per cent. per annum at least, *and that of those* A LARGE PROPORTION WOULD BE TRACEABLE TO NEARLY AVOIDABLE CAUSES." (p. 4.)

The capitals we insert to draw attention to this important truth, as precisely similar to the result of the inquiries made by the late Royal Commission into the Sanitary State of the British Army. Again, in a note, Mr. Jeffreys writes:

"How far within the truth is this estimate, considered exorbitant by some, we have now a melancholy proof in the thinning of our ranks. One corps alone, and that presumed most acclimated, the Madras Fusiliers, are stated to have been reduced chiefly by disease, in six months, from 850 strong to 190 fit for duty! Doubtless, the rest of the gallant force under the late Sir Henry Havelock have suffered in much the same proportion." (p. 4, note.)

One more instance we cite, at once as an example of the disastrous effects of exposure to the climate of India.

"A finer body of men than Her Majesty's 44th Regiment in 1823 could not be found now in the British army. I believe it was 900 strong. The commanding officer was said to have condemned confinement of the men during the day as effeminate, and especially to have continued drilling them in the forenoon after the hot season had begun. Before the error was discovered, its dire effects had commenced. For some months not less than *one-third*, and for some weeks one-half of the men were in hospital at once, chiefly with fever, dysentery, and cholera. I remember to have seen for some time from five to ten bodies in the dead-room of a morning, many of them specimens of athletics." (p. 43.)

The gloom which has recently been thrown over our Indian affairs is not diminished by the recollection of such lessons. Nevertheless, they are stern realities, which must be grappled

with face to face, more especially when we ask with Mr. Jeffreys, What is to be the numerical strength of the British force maintained in India? Some Indian statesmen have spoken of eighty or a hundred thousand!

We have thus broadly and unshrinkingly stated these broad facts, knowing that the science of medicine and sanitary science teach us that much may be done to ameliorate the condition of our British soldiers in India. We know that the climate exaggerates the causes and the severity of diseases there, and that these exaggerated conditions of disease have been fostered rather than obviated by the military economy which has hitherto been pursued towards our troops when sent to serve in that country. To ameliorate their condition, therefore, in the words of Mr. Jeffreys, is a subject which "commends itself to the attention of every one who is moved by feelings of duty, humanity, or gratitude, to further the object of neutralising, to the utmost extent which the advanced state of science shall render possible, the effects of the climate of India upon the gallant men of all ranks, who, oblivious of any hope or prospect of personal advantage, are devoting, and, it is to be feared, sacrificing themselves to the maintenance of British supremacy in the East."

We deem it would be trifling with important subjects treated of by Mr. Jeffreys, were we to attempt criticism of the important details furnished by him in his book. The subject matter of the volume might be classified under three heads.

I. Important details are given as to how the dress of the soldier in India ought to be constructed, and the textile nature of the materials of which it ought to be composed; and that more especially as regards the specific properties of the material through which the heat not only of the climate but of the body itself operates, and is to be resisted or counteracted. The conduction, the reflection, the slow radiation of heat, and its correction, together with the evaporation of moisture and the subterranean absorption of heat, are in their turn philosophically considered; and, in detail, scientific principles are practically applied in the construction of model headdress and clothing for our troops in India, and in providing for them suitably constructed and ventilated barracks.

II. Topics are discussed which ought especially to arrest the attention of the statesman who would promote the wealth, maintain the strength, preserve the health, advance the enterprise, and extend the resources of India. Under this head we would especially notice the importance of properly locating our British troops, and especially in selecting for them proper sites in the hill districts of the country—topics which have been repeatedly pressed upon the attention of the Indian authorities by Mr. Ranald Martin. The preservation of the soldier's child is a most important one, and has met that attention from Mr. Jeffreys, which its importance demands. Under the head of the "hopeful encourgement of British soldiers serving in India," there is one provision which, we think, Mr. Jeffreys has omitted, but which, we are of opinion, might be of some service. When it is known, as Mr. Jeffreys shows, that after a long service in India, the soldier finds on coming home to England, that he is unable with his resources to contend in his humble sphere with the cold of the climate, compared with the one he has left; and considering also that his ties of relationship are in very many instances completely severed; considering, moreover, that his attenuated body, after years of inaction, lassitude, and exhaustion, is unable to do work which would support him here, and being unable to compete with stronger men, who have the preference, would it not be better for him to remain in India? To enable him to do so, we are of opinion that he might be encouraged to remain by being provided, at the expense of Government, with "a small bit of land," "a little farm," in fact, in the hill districts of India; which, with the small pension Mr. Jeffreys proposes, would enable him to spend, in that country, the rest of his years in comparative ease. No doubt, in time, a respectable body of militia pensioners might be constituted, if such a measure were carried out, who could not fail, even in the old age of the men, to be of service in the local management and military supervision of Indian districts.

III. Under this head we would class the important material contained in an appendix, forming one third part of the volume.

We again earnestly recommend Mr. Jeffreys's work to the calm study and reflection of those who have to do with India and the preservation of our army there. We know it is a matter of history, and not merely of opinion, that the sufferings of the soldier are apt to be forgotten and lost sight of in the excitement which attends over great martial achievements. We know also that the humanising influence of our profession will at once make itself felt, when its position, of the medical department, in the organisation of the army is placed on a broader, more liberal, and higher basis than it has hitherto been—when a high standard of professional education is demanded of him who would serve his country as a medical officer, and when the sanitary affairs of the army (as Mr. Mackie long ago advocated in India,) should be under the control of a responsible medical officer of high rank—when, as he also advocated in the minutes of evidence taken before the Select Committee on Indian Territories in 1853, "for the arrangement of all subjects connected with the medical concerns of the army of India, as well as with the health concerns of the civil population, there should be at the India House a qualified youthful and selected medical officer, as a secretary in the medical department. Without such an officer, the medical records of India become buried in the public offices, and lost to European and to Indian medical science."

On the Treatment of Sprained Ankle. By Peter Hood, Surgeon. pp. 30. London. 1858.

Mr. Hood is well known to the profession, as a practitioner who has shown himself desirous of communicating to his brethren any useful hints or methods in treating and managing diseases, which his large experience has suggested to him as being worthy of notice. We have already had occasion to speak favourably of his *Treatise on the Treatment of Scarlet Fever*.

He now announces a novel plan of treating sprained ankle. "I do so," he says, "because I have had frequent opportunities of observing its excellent effects during many years of experience in its use, and because I can therefore safely recommend it to my medical brethren." This plan consists in the *very early* application of well graduated pressure to the injured joint. We may certainly call it a new plan, for we find no allusion to anything of the kind in any of our surgical authorities. If it be found equally efficacious in the hands of others, as it has proved in the hands of Mr. Hood (and a perusal of the cases detailed in his pamphlet satisfies us that it will be so found), we can have no hesitation in saying, that the warm thanks of the profession are due to the author for the information thus imparted to the medical world.

An Effectual and Simple Remedy for Scarlatina and Measles: in a letter to John Simon, Esq., F.R.S., the Medical Officer of the General Board of Health. With an Appendix of Cases. By Charles Witt, Member of the Royal College of Surgeons, and Extra-Licentiate of the Royal College of Physicians of London. pp. 24. London: George Philip and Son. 1858.

Dr. Witt has written this pamphlet with the best possible intention—that of making known what he believes to be an infallible remedy for a dangerous and often fatal disease. He states that he was informed more than thirty years ago, by the late Mr. Wilkinson, that, "as the result of his treatment of scarlatina and measles with the carbonate of ammonia, he had

not lost a single patient; and he further stated that, after having cured these diseases by this agent, he rarely, if ever, had any of the usual unfavourable sequelæ to contend with."

The use of ammonia in scarlet and other fevers was known long ago, as Dr. Witt shows, to Peart, Willan, Lettsom, etc.; but it seems, as regards the eruptive diseases, to have fallen into desuetude in this country. According to Dr. Witt, the administration of the sesquicarbonate of ammonia (in doses of from three to seven grains,) has been found both in his hands, and in those of other practitioners, a remedy of the highest value. If this statement is fully borne out by subsequent facts, the author of this pamphlet will have conferred an immense benefit on mankind.

British Medical Journal.

SATURDAY, AUGUST 21st, 1858.

THE MEDICAL ACT.

From the number of questions relative to the bearing of the new Act upon existing practitioners which have been submitted to ourselves and to our contemporaries, it is clear that the profession have not yet quite mastered the provisions of the new measure. There seems to be an idea abroad that the Act will enable the practitioner who at present possesses only the diploma of the College of Surgeons, to charge for medicine; or the member of the Apothecaries' Company to charge for surgery. This, however, is a misconception which should at once be dissipated. The Act permits a medical man to register according to his qualification only. In order to enable him to send in his account as a general practitioner, he must possess the diplomas of both College and Hall. The Clause which provides for reciprocity of practice does, indeed, confer new powers upon all regular practitioners, inasmuch as it will open to them all the three kingdoms. It cannot be doubted, however, that the graduate in medicine will be the chief gainer under this Act, as he not only obtains reciprocity of practice, but the law enables him to claim as a right that which has hitherto been conceded to him only by the good sense of the profession.

Whilst the M.D.'s of the British Universities have been the chief gainers, it is equally clear that the London College of Physicians has been the principal loser. It descends from its place, as the chief medical corporation of the country, to take its place on an equality with the twenty other corporations delegated with a like duty. By the provisions of the Act the College is bound, indeed, provided it obtains a new Charter, to admit all those members of the Colleges of Physicians of Ireland and Edinburgh, who are practising in England. This permission will, however, recruit its ranks to a very small extent, even supposing these members of the Colleges of the sister countries should think fit to avail themselves of their right under such new charter.

It is equally clear that British graduates having otherwise a right to practise, will not submit themselves to a fresh examination at the hands of the authorities in Trafalgar Square. It seems, then, that there are but two courses open to the College. It must either determine to wrap itself up still closer in its old exclusiveness, and transform itself into a narrow club, which will ultimately die out from its inability to feed itself with fresh blood, or it must obtain a new and a far more liberal charter than it has hitherto contemplated.

The blow that has been struck at the College is so great, that we cannot conceive, for one moment, that it will adopt the former alternative. The days of exclusiveness are gone past. A physician must now stand upon his own merits, and he can neither receive lustre or shadow from the college or university with which he may happen to be associated.

We believe that the admission of all British graduates to the licentiateship of the College, without examination and at a moderate fee, will form the chief feature of any charter, calculated to restore the College of Physicians of London to its pristime power and authority. We are given to understand that the provisions of the new charter are, at the present moment, under consideration; and we have every hope that the Council will agree to a measure which shall worthily supplement the great consolidating Act, as far as our own profession is concerned, of the present century.

LUNATIC ASYLUMS AND THE LUNACY LAWS.

The *Times* is determined to employ itself during the vacation in running a muck against the private asylums for the cure of the insane, and in creating a hatred in the public mind against all persons connected with them. Within these last three weeks, two violent and slanderous articles have appeared in the pages of that paper, and an abstract of the last report of the Commissioners, so sneeringly written that we scarcely recognise in it a public document compiled with the well known courtesy of the Commissioners. If it were the intention of the leading journal to preach a crusade against all private asylums, with a view to their abolishment, and the substitution of public asylums in their stead, we should not feel surprised at the unscrupulous manner in which all private asylums are broadly denounced as "*horrid dens*"—we should not even start at being informed that it was the practice of superintendents of asylums "to convert a dubious or a partial case of insanity into a confirmed one." If a dog must be killed, it is of little consequence what missile is thrown at him; but the *Times* must well know that private asylums never can be done away with in this country; and, knowing this, it would have been well had the Editor considered the mischief he was doing by permitting the insertion of these slanderous and untruthful articles, and consequently, in creating a horror of all asylums in the public mind—a feeling which must react upon the poor lunatic himself.

Every person connected with the treatment of the insane well knows that the curability of insanity is directly proportionate to the early treatment of the patient. In public as well as private asylums one can trace the confirmation of the disease to the dread of this salutary treatment; a dread engendered by traditions which still linger in the public mind relative to the brutality endured in asylums at the beginning of this century. Within the last fifty years, however, society has itself become more humane. Our jails, our workhouses, our reformatories, testify to the benevolent spirit that is abroad; and we defy any one to say that in this vast social improvement the insane have not more than fully partaken. It is a well known fact—a fact

that any person who has the misfortune to have a friend or relative confined in an asylum can verify, that, in all the first class asylums of this country, the accommodation afforded to patients is greatly superior to that which they can obtain in their own homes. It was sneeringly said in the *Times'* abstract of the last Report of the Commissioners, that private asylums were dignified by very fine names; and the "Physician", who contributed so long an article on Lunatic Asylums and the Lunacy Laws, states that the places selected for private asylums "are often old mansions or large houses in the country," etc. The object of stating these things is to bring private asylums into disrepute—as we think, very unfairly. For instance, it is absolutely necessary that, for the treatment of the insane, a salubrious situation should be chosen, where privacy and pure air are obtainable. These things can only be met with in the country; and in the country "old mansions", such as the manor house or the country seat of some nobleman, are the only class of edifices to be met with capable of giving accommodation to a large number of inmates. These mansions, of course, have some imposing name; and this name the proprietors of the asylums simply retain: the coinage is none of his, and should not, in fairness, be placed to his account. The "Physician", it is true, states that these old mansions often have extensive out-offices, such as stables, haylofts, cowhouses, cartsheds, etc.—not unusual accompaniments to a private mansion, we confess; but then he goes on to say that "these offices are frequently converted into apartments for an inferior class patients". The impression left upon the public mind by this passage will, without doubt, be an unpleasant one. If such buildings have been improperly "converted", and are not suitable for the reception of patients, why do the visiting magistrates and the visiting commissioners permit their use? It is the inspection that is clearly here in fault, and on the inspectors the blame should be. With respect to those asylums that lie within the metropolitan district, we know that the complaint of imperfect scrutiny does not obtain. The commissioners have never been credited with too much leniency in their inspections; and the minute scrutiny which often condescends to notice with severity an old stain upon a bedtick certainly would not permit the use of "converted" cowsheds and haylofts for the housing of the insane.

That there is very much that requires amendment in the lunacy law, we freely admit; and we are glad that Mr. Tite intends to make it the subject of a parliamentary inquiry in the next session of Parliament. We feel quite convinced that no man who is fit to be entrusted with the care of lunatics will regret to hear that the question of the treatment of the insane in this country will shortly be closely investigated. At present, such an absurd and wicked prejudice has been created in the public mind by the press, and the *Times* especially, against those "horrid dens", private asylums, that it is impossible to hope that the judgment of the public will be otherwise than strongly biased against those who own or defend them. So fiercely, indeed, has this prejudice been excited, that we greatly question if two-thirds of the asylums would not be emptied at the present moment by British juries. We put our faith, however, in the calmer judgment of the country which is sure to follow the present excitement; and then we trust to see the whole subject discussed in a manner worthy of its gravity and the many high considerations involved in it. The question of improving the present method of certifying patients lies at the root of the whole matter, and we shall not fail to return to it at the earliest possible moment.

THE WEEK.

THE Lords Commissioners of Her Majesty's Treasury have recently made a minute, relating to the printing of Departmental Reports and Papers; one of the effects of which is to prevent the Registrar-General from henceforth circulating gratuitously copies of his Reports. In every aspect in which this act may be looked at, it appears based on very false economy. For, as regards the profession in general, it surely cannot be ultimately a source of loss to the State to place in the hands of those who may desire to possess it, the valuable information contained in the documents to which we refer. But there are some on whom the prohibitory minutes of the Lords Commissioners of Her Majesty's Treasury press with peculiar injustice. We allude to a large staff of gentlemen, in various parts of the kingdom, who have for years furnished, gratuitously, the results of careful and elaborate meteorological observations in their various districts. Several of these gentlemen, as Dr. Barker of Bedford, Mr. Jeans of Grantham, Dr. Hoskins of Guernsey, etc., were among the observers who used to contribute weekly meteorological returns to the ASSOCIATION MEDICAL JOURNAL; and those Associates who remember what those returns were, will well understand that great care, time, and expense, must have been required for their construction. And the same inference is applicable to the returns furnished to the Registrar-General. They are taken by means of expensive instruments, most of which have been compared with standard instruments by Mr. Glaisher. The labour required to take and to record the daily observations, and to work out the monthly results, is considerable; and so considerable, that for this purpose many of the observers are compelled to employ trustworthy assistants. Some of them have incurred an annual expenditure varying from ten to twenty pounds, solely in the preparation of the Meteorological sheets for the Quarterly Returns of the Registrar General. We do hope that, as a matter of mere justice alone, the Treasury minute may be rescinded, so far, at least, as to allow copies of the Registrar General's reports to his meteorogical fellow-labourers. We should greatly regret to see the meteorogical supplies stopped; but, if the furnishers thereof are driven to withhold these valuable contributions, who could blame them?

Some correspondents in the *Times* complain that, in the apportioning of honours for services in India during the last year, the medical officers have been overlooked, with the exception of two, who have been appointed C.B., viz., Superintending Surgeon Tritton, for Delhi, and Superintending Surgeon Brown, who accompanied the Commander-in-Chief's force when it relieved the garrison of Lucknow. This must surely be from mere delay; it cannot be intended to apportion honours so unequally as would be implied by giving the Victoria Cross to a surgeon for dressing, under fire, the wounds of a Crimean officer, while Dr. Fayrer, after aiding in the defence of his residence—an important outpost at Lucknow—is allowed to return to Britain in impaired health and circumstances, and unrewarded.

Editor's Letter Box.

THE INDIAN MEDICAL SERVICE.

Sir,—I understand that there are at present many vacancies for medical officers in the Honourable East India Company's service. Perhaps a slight sketch of the duties, etc., of such officers, might be interesting to those who think of entering it.

The assistant-surgeon, on first arriving at the Presidency, is usually attached for some months to an European regiment or general hospital, doing duty under the senior surgeon. He may have a certain number of patients allotted to him; and of these he has to prepare cases, which, I believe, are subsequently submitted to the superintending surgeon. He afterwards is attached to a native corps, and is expected to pass a *viva voce* examination in the native language, not a difficult thing after having resided for some little time in the country. He will probably now be sent up the country to do "general duty" at some one of the large stations, when he may be attached to the general hospital, or to some European regiment. His pay during this period is about £300 per annum with infantry, £400 with cavalry, with £30 more if two hundred miles from the Presidency. He may have an occasional increase by being put in charge of detachments, etc.

If he belongs to the Bombay Presidency, he will have to serve for two years in the Indian navy. This is a hardship to some; but for others it has its advantages. The pay is increased, the expenses are lessened, the heat is somewhat less trying, and he has opportunities of seeing other parts of the East. There are also several staff appointments to be had in the navy, as resident surgeon in Bushire, Bagdad, Kotree on the Indus, etc., when both the pay and the opportunity for usefulness are considerably increased.

After having thus accomplished his share of general duty, or Indian navy, he may either obtain charge of a native regiment, when his pay will be from £450 to £500 a year; or, if more fortunate, a staff appointment.

The value of these appointments varies. As assistant-surgeon in charge of irregular horse, he gets £630; as civil surgeon to a station, where he would have under his care the members of the civil service, officers on civil employ, the civil hospital, the gaol, and the police, from £400 to £1000; as assayer to the Mint, £600 to £1200. There are other appointments on the list, valuable for their rate of pay, for their independent position, freedom of action, and extended sphere of usefulness: such are those of surgeon to the governor, conservator of forests, superintendent of vaccination in the various divisions, educational inspector, the medical charge of sanitaria, the professorship of the various colleges, etc., etc.

At the expiration of ten years, he obtains the pay of surgeon, and rank of first class assistant-surgeon. On obtaining his surgeoncy, he is eligible for staff surgeon, superintending surgeon of division, and so on, until he arrives at the head of the list, and becomes inspector-general of hospitals, or director-general.

The pay of the surgeon in charge of native infantry is about £800 per annum; of European infantry, £1000; of artillery and cavalry, £1000; superintending surgeon, £1500; inspector-general, £2000; director-general, £3000.

It is not every man that is fitted for a public service. If he be one fond of home and home ways, wishing for peace and quiet, preferring the retirement and routine of village life and practice to the changes and chances of the campaign, the shiftings and excitements of military life, by all means let him stay at home. If, also, he has what is usually termed "a good opening" here—an established practice, or a good introduction and interest, he would not be right, I think, to leave: but, for the many who wish to shun the hardship, poverty, and "uphill work" which usually beset the path of him who has to "establish a practice"; for those for whom a different mode of life would have a charm—scientific men, naturalists, botanists, geologists, who long for fresh and untried paths—India is the proper sphere.

The retiring pensions granted by Government vary from £191 to £700 per annum, according to length of service, commencing from seventeen years. To this is added a certain sum from the Medical Retiring Fund, the value of which varies in the different Presidencies.

I am, etc.,

S. J. H.

August 15th, 1858.

MILITARY CLOTHING.

Letter from W. Weston, Esq.

Sir,—I was very much pained to read in your last number the distressing intelligence that "Colonel Stratton, of Her Majesty's 77th, just arrived from Australia, marched his men to Dumdum, eight miles, *with their stocks on*. An hour after, he and his instructor in rifle practice were both dead of apoplexy. All over the country, paragraph after paragraph announces the deaths of so many men at such a place from apoplexy."

Very much the late government are to blame on this sad account, as I have spared no pains to induce them to adopt a proper cravat or stock for the army, and I have ample testimony, medical, surgical, and general, that what I have suggested to them has borne the test of full experience as perfectly fit for every exigency of the service and general health of the troops. The old stiff leather is imminently, as proved, dangerous to bodily exertion and mental reflection, as it impedes the circulation to and from the head.

This is my experience as a medical man. I suffered from threatened strangulation on even moderate exertion in my stock and scarlet coat previously to 1842, but have not since had the least inconvenience; and I have worn the same kind of elastic cravat all day, and frequently all night, up to this date, and in the constant performance of very arduous and fatiguing duties have enjoyed uninterrupted good health for this period, over sixteen years. I have not failed to notify to the proper authorities this experienced benefit at certain intervals, and hold several flattering letters of thanks for the trouble and care I have taken in the general equipments for the troops, but I am grieved to say that no available alteration has been effected. Unless the press take up the matter, it will be again and again neglected.

Perhaps, as the excellent Home Secretary has so well performed his public duty to our profession, he may be induced, by like feelings of humanity, to undertake the cure of the crying necessities of the army. I undertake to say that he will receive due gratitude from the same, and every sincere friend and well wisher to its untarnished and imperishable laurels, which it has gone through so much to earn for a too ungrateful country, or, I should rather say, the authorities with whom these improvements do rest.

I am, etc., W. Weston.

Honley, Yorkshire, August 9th, 1858.

HOMŒOPATHS IN THE MEDICAL DIRECTORY.

Sir,—Mr. Churchill having sent out his annual circular, it seems a proper time for the suggestion, (which, if I mistake not, has been made before,) that a distinction should, for the future, be made between the regular practitioners and the homœopaths. This could easily be done, either by giving the latter a place to themselves under their proper title, or by affixing a distinctive mark to their names.

Some such step as this is particularly required now, after the very questionable conduct of some of our leading men in London, who had not thought it derogatory to meet homœopaths in consultation. No explanation has hitherto been offered by them worth attention, except that of ignorance of the characters of those with whom they consulted. If the plan which I propose was adopted, this excuse would be no longer available, as a reference to the *Directory* would at once give the information required. It is hardly necessary to point out to Mr. Churchill how much it would increase the sale of the *Directory*. Instead of buying one every three or four years, as most of us do now, we should almost be compelled, in self-defence, to buy one every year. I conceive there would be no difficulty in obtaining the necessary information for enabling the editors to make the distinction. If the homœopaths declined to furnish it (a sign of grace, I confess,) any near resident practitioner could do so. I shall be happy to act in this capacity for my neighbourhood.

As a country surgeon of between forty and fifty years standing, I heartily congratulate the profession on the spirit shown at the late meetings of the district branches of the Association, and especially by the South Western. All honour to Dr. Radclyffe Hall for his admirable speech, and to its members for their resolution to hold no intercourse with those who are in the habit of meeting professed homœopaths. I quite agree with Dr. Shapter, that these are more culpable than the

homœopaths themselves. Some of the latter *may be* sincere, however hard it is to believe it.

The proceedings of the General Meeting at Edinburgh cannot fail to give great satisfaction to the profession; and we are again called on to admire Dr. Hall for his telling reply to Dr. Conolly's goodnatured but ill-judged remarks.

Yours, etc., F.R.C.S.

COUNTERIRRITANTS.

LETTER FROM F. PORTER SMITH, M.B.LOND.

SIR,—Whilst I perfectly agree with that part of Dr. Inman's paper on Counterirritants which explains the effect of blisters placed directly over an inflamed part, I cannot so readily give up the belief in the really derivative and undoubtedly beneficial effects of blisters applied at some distance from an *acutely* inflamed tissue. It is the practice of Dr. Budd, of King's College Hospital, to apply blisters at the distance of several inches on the heart-side of the acutely inflamed joints in rheumatism, taking the precaution, however, *in half the usual time*, to remove the blister, and apply warmth, it may be in the shape of a poultice. The effect is, that a large quantity of serum, containing the irritating *materies morbi*, lactic acid, is obtained from this temporary gland; whilst there has not been possibly time for the cantharidine to pass into the tissues and irritate the acutely inflamed articular tissues, as it seems to do, in keeping with Dr. Inman's theory, if the blister be allowed to remain on the usual time, or if it be placed directly over the joint. Again, in rheumatic pericarditis, although a blister placed directly over the organ will, in consonance with Dr. Inman's theory and my own practice, increase the mischief, yet, if it be applied at the distance of several inches from it, it will greatly relieve, in accordance with the doctrine of counter-irritation or revulsion. I am therefore equally convinced of the positive truth both of Dr. Inman's theory of absorption, and of the venerable doctrine of counterirritation or revulsion.

I am, etc., F. PORTER SMITH.

Evercreech, August 17th, 1858.

Medical News.

BIRTHS, MARRIAGES, DEATHS, AND APPOINTMENTS.

** In these lists, an asterisk is prefixed to the names of Members of the Association.*

BIRTHS.

LAURIE. On August 15th, at 6, Boyne Terrace, Notting Hill, the wife of D. C. Laurie, M.D., of a son.

STEDMAN. On August 15th, at 6, Upper Brunswick Place, the wife of *Silas S. Stedman, M.D., of a daughter, stillborn.

TATHAM. On August 9th, at 2, Newby Place, Poplar, the wife of R. G. Tatham, Esq., Surgeon, of a daughter.

WILDASH. On August 10th, at Hythe, the wife of H. C. Wildash, M.D., of a daughter.

MARRIAGES.

BADDELEY—DALE. Baddeley, Thomas, Esq., solicitor, of Leman Street, Whitechapel, to Rosa, youngest daughter of George T. Dale, Esq., Surgeon, King's Place, Commercial Road, at St. Peter's Church, Notting Hill, on August 12th.

DUCHESNE—GULLICK. Duchesne, Robert, Esq., Surgeon, of Mount Place, London Hospital, to Eliza Maria, daughter of Joseph Gullick, Esq., of New Ground Terrace, Guernsey, at St. Peter Port, on August 11th.

LAMBE—PRICE. Lambe, George Vautier, Esq., of St. Helena, to Amelia Augusta, third daughter of James Price, M.D., late of Her Majesty's Army Medical Staff, at St. Matthew's Church, Brixton, on August 10th.

PERKINS—DUNSFORD. Perkins, C. H., Esq., of Swansea, to Adelaide, daughter of the late Harris Dunsford, M.D., of Seymour Street, London, at Monkstown Church, near Dublin, on August 10th.

RUSSELL—MULHOLLAND. Russell, Charles A., Esq., of Lincoln's Inn, solicitor, to Ellen Cecilia, eldest daughter of the late Joseph Stevenson Hulholland, M.D., of Belfast, on Aug. 10.

DEATHS.

PRINCE, Charles, Esq., Surgeon, for forty-eight years in practice at Uckfield, Sussex, on August 15th.

RIGGALL. On August 12th, at Hampstead, aged 5 weeks, Frank Edward, son of Edward Riggall, Esq., Surgeon, of Bayswater.

WATERS. On August 17th, at Exmouth, Annie Ellen, daughter of *Allan Waters, Esq., Surgeon, aged 12.

PASS LISTS.

ROYAL COLLEGE OF SURGEONS. MEMBERS admitted at the meeting of the Court of Examiners, on Friday, August 13th, 1858:—

ATCHLEY, Geo. Fred., Whitehall St. George, Gloucestershire
BEILBY, Thomas Green, Swanland, near Hull
COHAM, John Harding, London
COOPER, Samuel John, London
GREENWOOD, Thomas Frederick, Wallingford, Berks
HUGHES, Robert, Trefriw, North Wales
JOTHAM, Edwin Sparhawke, Hadley, Middlesex
KING, Germain, Helmsley, Yorkshire
LEWIS, Alfred Henry, Penang, East Indies
LLOYD, Henry James, Mornington Place
MOCKRIDGE, John, Taunton, Somerset
PETMAN, Alexander Prince, Folkestone, Kent
REED, Thomas Sleeman, Helston, Cornwall
SPRY, George Frederick, Cheltenham
TONGE, Morris, Wimbledon Common

At the same meeting of the Court—

AUSTEN, Josiah, passed his examination as Naval Surgeon. This gentleman's diploma of membership bears date June 11th, 1852.

Monday, August 16th:—

BARTLET, Alexander Edward, Ipswich
LEE, John, jun., Ashbourne, Derbyshire
MACKRETH, John Frederick, Keyingham, Yorkshire
O'NIAL, Daniel, Killaloe
ROGERS, John Frederick, New Grove House, Bow Road

LICENTIATES IN MIDWIFERY admitted at a meeting of the Board, on August 14th:—

BARFOOT, Edward, Islington
BEADLES, Hubert, Broadway, Worcestershire
CAYZER, Thomas, Erith, Kent
HEGINBOTHOM, Edmund, Winchelsea
HICKS, Robert, Lewisham
LA FARGUE, George Frederick Heriot, Husband's Bosworth
LAMBERT, Henry Stone, Croydon
LEONARD, Charles George, Old Kent Road
MASON, William, Ashby-de-la-Zouch
NADIN, Joseph Edmund Kooystra, Tipperary
PARKER, Thomas Didymus, Sevenoaks
SENIOR, Charles, Bradford, Yorkshire
STOREY, Robert, Ashby-de-la-Zouch
WEBSTER, Thomas, Kensington
WILLIAMS, William Henry, Plaistow
WINKFIELD, William Benjamin, Bedford
WOODWARD, Alfred, Bicester

UNIVERSITY OF LONDON. M.B. First Examination. 1858.

First Division.

ATCHLEY, George Frederick, King's College
ATWELL, Gregory Haines, Guy's Hospital
BARTLEET, Thomas Hiron, Queen's College, Birmingham
BRACEY, Charles James, Queen's College, Birmingham
EASTON, John, King's College
EVANS, George Moule, King's College
GAYE, Arthur Charles, University College
GERVIS, Henry, St. Thomas's Hospital
GIBSON, Francis W. B. A., University College
HALLEY, Ebenezer, Royal Manchester School of Medicine
HARRISON, A. J., Sydenham College, Birmingham
HELLICAR, C. J., Bristol Medical School
LLOYD, Francis, St. Bartholomew's Hospital
MACKENZIE, Morell, London Hospital
MORETON, Thomas, St. Thomas's Hospital
NEESOM, Joseph, Leeds School of Medicine
RUTTER, Joseph, University College
SAUNDERS, G. J. S., King's College
SMITH, Thomas Bower, University College
SUMMERHAYES, William, St. Thomas's Hospital
WINSLOW, Henry Forbes, King's College

Winterbotham, W. L., University College
Workes, Edward, St. Thomas's Hospital
Woodforde, Alfred, University College

Second Division.

Belcher, Robert Shirley, King's College
Belinfante, Simon, University College
Butters, John, Extra-Acadl. Med. Sch., Edinburgh
Coates, Matthew, Bristol Medical School
Dale, William, Leeds School of Medicine
Dickins, Frederick Victor, Royal Manchester Sch. Med.
Jakins, William Vosper, University College
Lever, Reginald Croft, King's College
Mayor, Thomas Orlando, Adjoining St. George's Hospital
Pout, Frank, King's College
Roberts, Charles Lincoln, University College

Apothecaries' Hall. Members admitted on Thursday, August 5th, 1858:—

Bogg, Edward Beverley, Louth, Lincolnshire
Easton, John, Shaftesbury
Jones, William Goodall, Birmingham
Vigurs, Chambre Robert Corker, Crawley, Sussex

HEALTH OF LONDON:—WEEK ENDING AUGUST 7TH, 1858.

[From the Registrar-General's Report.]

In the week that ended on Saturday (August 14th) the number of deaths registered in London was 1,147, and exhibit a decrease on those returned for the two previous weeks. In the ten years 1848-57 the corrected average number of deaths, allowing for increase of population, in the weeks corresponding with last week was 1,355; the number now returned is therefore less by 208 than the average rate of mortality would have produced.

Eight deaths are returned as occasioned from "English cholera," infantile cholera, and choleraic diarrhœa; of this number seven were assigned to infants under one year of age; the other a coachman, aged 40 years, English cholera (14 days).

Diarrhœa appears to decline, for whereas during the month of July the weekly number of deaths from that disease rose by degrees from 94 to 168, it fell last week to 121, and was fatal to 105 children under the age of two years. The deaths referred to measles were 25, scarlatina 85, whooping-cough 38, and to typhus 32, Scarlatina and diphtheria prevail to a considerable extent, at double the average rate of mortality, and affect more particularly the east and south districts.

The deaths of six nonagenarians are returned, namely of two men and four women. Two were respectively 97 and 98 years of age.

Last week the births of 787 boys and 709 girls, in all 1,496 children, were registered in London. In the ten corresponding weeks of the years 1848-57 the average number was 1484.

At the Royal Observatory, Greenwich, the mean height of the barometer in the week was 29·921 in., it increased from 30·25 in. at the beginning of the week to 30·26 in. by 9h. 30m. A.M. on the 8th: decreased with slight exceptions to 29·72 in. by 3h. P.M. on the 14th, and then turned to increase slowly. The mean temperature of the week was 65·4°, which is 3·7° above the average of the same week in 43 years, but corresponds very nearly with the temperature in the same week of last year. The highest point of the thermometer in the shade was 86·9° on Thursday; the lowest 46·5° on Sunday; the extreme range was therefore 40·4°. The highest point in the sun was 108·5° on Thursday, the lowest on the grass was 35·0° on Friday; to these extreme differences vegetation was exposed. The mean temperature of the Thames was 66.4°. The water on an average was 1° warmer than the air. The mean dew point temperature was 56·3°, and corresponds with the same week of last year. The mean degree of humidity wanted 27 of saturation, complete saturation being represented by 100; the previous week was drier, wanting 36 of saturation, with the air rather cooler. Excepting some rain on Tuesday morning the weather was fine up to Saturday, which was cloudy throughout the day. Rain fell occasionally after noon. A great and unusual darkness was prevalent a little before 4h. P.M., during which the direction of the wind changed from E. by N. to W. by N. Shortly afterwards rain fell heavily to the depth of 0·5 in. within 40 minutes. Several flashes of lightning were seen and thunder was frequently heard.

REPORT OF THE LUNACY COMMISSIONERS.

The following abstract of this important document has appeared in the *Times*:—

The report of the Lunacy Commissioners to the Lord Chancellor has been published in the form of a blue-book of some 50 pages of printed matter. They state that considerable progress has been made of late towards the provision of adequate public accommodation for pauper lunatics; new sites have been purchased, and plans for new asylums approved. Buildings already in course of erection have been materially advanced towards completion. The asylums in course of erection will accommodate 1,169 men and 1,167 women, in addition to 2,481 accommodated in existing asylums. The total number of pauper lunatics immured in various asylums had increased, on the first of January last, from 16,657 to 17,572, and it is assumed that this increase will continue. The Commissioners next detail the steps which they have taken to provide for lunatic paupers in the various counties and boroughs. The disgraceful state of the asylum of the Haverfordwest (South Wales), in reference both to its construction and management, has already been frequently submitted to the Lord Chancellor; the last visit to the asylum was made in September 1857, and, so far from any improvement having been effected, the complaints of the Visiting Commissioners proved to be of a still graver character. The result was the supersession of Mr. Millard, the medical officer, and the appointment of Mr. Phillips in his place. In this den at Haverfordwest we find by an entry in the Visitors' book, dated the 7th of September, 1857, that, although all the patients (15 men and 19 women) were in a quiet state, "nevertheless one woman had her arms confined with long sleeves, and another was in one of the 'restraint' chairs and in a darkened cell." The poor wretch, whose offence was noisiness and the striking of another inmate, was kept in this position from 6 p.m. till 3 p.m. on the following day, when she was released by order of the Visiting Commissioners. Mr. Millard, the medical officer, had not been near her the whole time. Her hands and feet were cold from the long restraint, and had her confinement been much prolonged the skin of her arms would have been broken by the edge of the iron sleeves. Her legs were much bruised, and her eye also. The Visitors record their opinion that "the mode in which this patient has been restrained, and the condition in which they found her, are disgraceful to the medical officer (Millard), and to the authorities of the asylum."

The fear recently expressed by the *Times*, that Acomb House, at York, "was not a solitary specimen of the horrors of a lunatic asylum, is fully borne out by the belief of the Visiting Commissioners, distinctly expressed—that these "restraint chairs," although repeatedly forbidden, "are frequently used without any records of the fact." The general condition of this foul prison at Haverfordwest was the same as usual. The privies were still very offensive, there was a deficiency of blankets, furniture, and chamber utensils, and a total want of amusement. No diet table is kept. The notorious Acomb House, at York, the scene of poor Mrs. Turner's sufferings, appears to have escaped the notice of the commissioners; it is not mentioned at all. The want of hospitals for the cure of lunacy, especially near the metropolis, is pointed out as a great evil; and a case is mentioned where the lunatic wife of a respectable gentleman, much reduced in circumstances, and the inmate of a debtors' prison, was refused admission by the governors of Guy's Hospital, and obliged to go to the workhouse in consequence. The state of the Earlswood Asylum for idiots at Reigate is still far from satisfactory.

"The water continues as bad as heretofore. The diet is in a very unsatisfactory state. The diet list contains no quantities, and there is no extra diet list. There is a bakehouse, but the bread is from Horley, and the meat is sent in baskets from Kensington. The supply of this important article is by no means certain, the butcher failing repeatedly to send it, and the great distance through which is has to travel causing it sometimes in hot weather to be unfit for food on its arrival. There have been several cases of fever and one of death. The building is giving way in some parts. The wages for attendants and nurses are very low, and the rules have not yet received the sanction of the Secretary of State. There has been no quorum of the Committee for some time past."

Serious charges of cruelty and ill usage having been established against the attendants in the Refractory Ward of the Northampton Hospital, the culprits were dismissed in consequence.

The new State Criminal Lunatic Asylum will be constructed without delay. It is to be erected on Bagshotheath, where 290 acres of land have been purchased for £6,000. The question of providing for the care of insane soldiers remains in abeyance, to the deep dissatisfaction of the Commissioners, who contrast the great difference in this respect between the two services.

The condition of single patients has much engaged the attention of the Commissioners. On the whole, it "cannot be described as satisfactory." As a general rule the accommodation provided is quite incommensurate with the payments, which are often very large. Cases of marked neglect have been met with, and the necessity for continued and regular supervision is apparent. In some cases the proprietors of these licensed houses, or rather prisons, have under their charge persons of whom no return whatever had been made to the office. The provisions of the law are generally disregarded, wholly or partially. The experience of the Commissioners on this head during the past year has confirmed the impression which they had long entertained—"that a very large number of insane persons are taken charge of by medical men and others without any legal authority;" and they "have reason to fear that the condition of such patients, deprived as they are of all independent supervision, is far from satisfactory." The necessity of assisting boroughs to provide asylums is next noticed, and an amendment of the Act of 1853 is suggested. On New Year's Day, 1858, 22,310 lunatics of all classes were confined (10,493 men, and 11,817 women). Of these 15,163 were confined in asylums, 1,751 in hospitals, 2,623 in metropolitan, and 2,647 in provincial licensed houses; 295 were found lunatic by inquisition, 633 were criminals, and 1,490 were chargeable to counties or boroughs. There are 37 metropolitan licensed houses, with very high-sounding titles. Brandenburgh House, at Hammersmith, formerly the "retreat" of the Consort of George IV., is now, with its spacious grounds and park, open, under Dr. Forbes Winslow, for the reception of demented patients.

CONSULTATION WITH HOMŒOPATHS.

THE *North American Medico-Chirurgical Review* for July has the following excellent remarks:—

"Much remark has lately been elicited in the medical circles of London, as well as among the members of the profession generally in Great Britain, on account of the fact that several physicians and surgeons of high standing in the British metropolis are in the habit of meeting homœopaths in consultation. It appears that Mr. Fergusson is one of those who have rendered themselves particularly conspicuous in this respect. In a card, however, published a short time ago in one of the London Journals, he denies that he is in the *habit* of consulting with these men, but admits that he does not hesitate to meet them in all cases of emergency, on the ground that it would be contrary to the dictates of humanity to let a patient suffer, simply because he was under the care of one of these practitioners. With all deference to the Queen's surgeon, we think him decidedly wrong in this opinion; nay, we go farther, and assert that any man who entertains such a view, is totally ignorant of the fundamental principles of medical ethics, and sadly unmindful of the duty he owes to his profession. What, forsooth, has suffering humanity to do in a matter of this kind? Is it not more probable that the great lever which moves to such a disgraceful violation of ethics, is the expectation of a fat fee, or a dread to disregard the influence of the wealthy and influential? If his Grace, the Duke of Shetland, breaks his leg, and is fool enough to employ a homœopath until mortification has taken place, is it incumbent upon Mr. Fergusson to go to his relief when he is requested to do so, without declaring that he cannot meet his attendant, and that he will not recognise him in the case in any form or manner whatever? No practitioner is guilty of inhumanity who respects his own dignity and honour under such circumstances. His Grace need only dismiss the so-called doctor; the path is then clear, and any man may step in and occupy it. To consult with the homœopath is to place ourselves on a par with him; if the surgeon amputates a leg for him, and the after treatment is confided to his care, it plainly implies that the surgeon has confidence in his skill and judgment, otherwise he would not allow the case to remain in his hands. What stronger endorsement could he give the quack? We are rejoiced to find that the profession of London has taken this matter in hand, and is determined to single out these friends of homœopathy. Let them take a bold stand upon the subject, and signally rebuke these men for the inconsistency and palpable impropriety of their conduct. The higher their position the more reason is there why they should be censured. An honourable physician should consider his profession as sacred as the person of his wife; he should no more think of coquetting with homœopathy, than a virtuous husband should think of introducing a harlot into the domestic circle. It is an unclean thing, and should not be touched.

"We believe this practice of consulting with homœopaths is not peculiar to our English brethren; indeed, we know it is not, for we have authentic information of the fact, that the same offence has occasionally been perpetrated in this country. The instances, however, have been few, and we recollect no case where the outrage has been committed by a physician occupying a high professional position. What is more surprising still is, that a State Medical Society, one of the oldest in America, should harbour homœopaths among its members. Can it be true, as is alleged in the May number of the *St. Louis Medical and Surgical Journal*, that the Massachusetts Medical Society is guilty of such an outrage? Our cotemporary asserts it as a 'well known fact,' and justly adds that it is a blot on the fair name of this ancient and *once* honourable body."

ERRATA IN ACTS OF PARLIAMENT.

THE question proposed to the Editor of the *Morning Post* in the following letter greatly concerns a large section of the medical profession.

"London, 18th August 1858.

"SIR,—Can the gross and palpable blunders in Acts of Parliament committed by clerks and printers, be remedied by any process more simple and prompt than the passing of Amendment Acts? If not, serious mischief and confusion are likely to arise from *errata* in two very important Acts of last session.

"In the 'Medical Practitioners Act', there is a schedule containing four columns, which ought only to contain three. The fourth column was introduced when the measure was in committee in the Lords; and was expunged on the bringing up of the report. The Act is printed without the explanatory matter originally contained in the fourth column of the schedule; and has only the heading left. As the heading is the important word 'Titles', it (when read with clause 16), confers upon the medical council the power of assigning appropriate 'titles' to the different classes of practitioners; and yet it gives them no directions for the exercise of that useless, dangerous, and strife-exciting prerogative.

"In the 'Titles to Land (Scotland) Act', the omission of the word '*not*' between the words 'shall' and 'have', in a proviso at the end of section 9, p. 26, has the effect of reversing the intention of the legislature in a matter of very great moment. At the commencement of section 31, p. 37, reference is made to Act 8 and 9 Vict., ch. *thirty-five*, in place of ch. *thirty-one*. The two Acts treat of totally different matters; and the blunder renders the section nearly inoperative, and to a great extent incomprehensible. In section 7, the word 'lands' is misprinted 'laws'; and in section 8, we have 'a new investiture by *registration*', in place of 'a new investiture by *resignation*'.

"It is idle folly for the Houses of Parliament to debate upon the wording of clauses, which ultimately are to be cut and carved according to the caprices of clerks, or the cantrips of 'the devil' in the printing-office of Messrs. Eyre and Spottiswoode. I therefore ask:—How are the errata to which I have directed your attention to be corrected before they can produce mischief? "I am, etc., SYNTAX."

POOR LAW MEDICAL REFORM. The Gloucestershire Medical and Surgical Association have given a subscription of five guineas to Mr. Griffin, to aid him in his expenses in carrying out Poor Law Medical Reform.

TO CORRESPONDENTS.

POSTAGE OF MANUSCRIPT AND PRINTED MATTER.

Any amount of manuscript or printed matter, singly or together, provided it contains nothing in the form of a letter, is transmitted through the post, in packets *open at the ends*, at the following rates: not exceeding 4 ounces, one penny; above 4 and not exceeding 8 ounces, twopence; above 8 ounces and not exceeding 1 pound, fourpence; for every additional half-pound or under, twopence.